EFFECTIVENESS OF CLINICAL PATHWAY FOR MOTHERS WITH CAESAREAN SECTION UPON THE KNOWLEDGE AND PRACTICE OF NURSES AND MATERNAL OUTCOME

By

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A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

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DECLARATION

I hereby declare that the present dissertation entitled **"Effectiveness of Clinical Pathway for Mothers With Caesarean Section upon the knowledge and practice of nurses and maternal outcome"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan,** M.Sc (N)., M.Phil., Ph.D., Principal, Apollo College of Nursing. I also declare that the material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other university.

II Year M.Sc (N)

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SYNOPSIS

A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Mothers with Caesarean Section upon the Knowledge and Practice of Nurses and Maternal Outcome at Apollo First Med Hospital, Chennai.

The Objectives of the Study

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section .

2. To evaluate the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses.

3. To assess and compare the maternal outcome in control and experimental group regarding clinical pathway for mothers with caesarean section .

4. To determine the level of satisfaction upon the nursing care in the control and experimental group of mothers with caesarean section .

5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section .

6. To determine the association between the selected demographic variables with level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

7. To determine the association between the selected obstetrical variables with level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section

The conceptual framework was made based on "King's Goal Attainment Model" (1981). Null hypothesis was formulated. An extensive review of literature was made based on the opinions of the experts. A quasi experimental study of one group pre-test and post-test design was used. The study included 40 nurses and 60 mothers with caesarean section who were selected by purposive sampling out of which 30 were in the Control group and 30 were in the Experimental group. The study was conducted at Apollo First Med Hospital, Chennai.

Demographic variable Proforma for nurses, demographic variable proforma for mothers with caesarean section, obstetric variable proforma for mothers with caesarean section, structured knowledge questionnaire, practice checklist, rating scale to assess the level of satisfaction and rating scale for maternal outcome for mothers with caesarean section were the various tools used by the researcher. The validity was obtained from various experts and reliability was obtained through inter rater evaluation and found to be highly reliable. After pilot study the data for the main study was collected.

Structured knowledge questionnaire and practice check list was used for the nurses. The rating scale for level of satisfaction and maternal outcome were used for mothers with caesarean section . Pre test structured knowledge questionnaire regarding clinical pathway for mothers with caesarean section was administered to the nurses and observed the level of existing nursing practice through checklist . Assessed the maternal outcome for mothers with caesarean section

through checklist and their level of satisfaction with existing nursing practice through rating scale in control group. Then clinical pathway was implemented. After 7 days post test structured knowledge questionnaire was administered to the same nurses and nursing practice was observed through checklist and the maternal outcome and their level of satisfaction of mother with caesarean section was assessed through rating scale among experimental group. The data obtained were analyzed using descriptive and inferential statistics.

Major findings of the study

- Majority of the nurses belongs to 21-25 years of age (82.5%) and single (82.5%) and most of them are residing in the hostel (67.5%). The educational status of the study participants reveal that most of the nurses belongs to Diploma in nursing (55%) and were 0-2 years of experience (60%) and the distribution of income shows that most of them had Rs.5001-7000 per month. Most of the nurses had no previous information regarding clinical pathways (60%) and about (40%) of nurses acquired previous information through books.
- Most of the mothers in the control group and experimental group were > 30 years of age (50%, 46.7%), hindu (56.7%, 60%), graduates (53.3 % , 63.3%) , married at the age of 24-27 years and home makers (50%, 53.3%) . Majority of them were living in nuclear family (73.3%, 83.3) with the family income between 50,001-70,000 (60%, 63.3%) per month respectively
- Most of the mothers in control group and experimental group were in gestational age of 39 – 40 weeks (73.3%, 50%), Primigravida (63.3%, 56.6%) and had maternal indication for caesarean section (40%, 46.7%) and majority of the mothers had 5 days of stay in the

hospital (83.3%, 86.7%). All the mothers have attended more than five antenatal visit (100%) and none of them developed any complication in both in control and experimental group (100%) respectively.

- Most of the nurses had moderate knowledge in the pre test (55%) where as in the post test most of them had gained adequate knowledge (77.5%)

- Majority of the nursing practice in control group in day 1 is partially compliant (96.6%), day 2 is compliant (100%),day 3 is partially compliant (100%), day 4 is partially compliant (100%), day 5 is partially compliant (60%) whereas all the practice of nurses in experimental group were compliant(100%) in all 5 days respectively.

- Most of the mothers were highly satisfied (56%) in control group and majority of the mothers were highly satisfied (90%) in the experimental group and none of them reported low satisfaction. Majority of the mothers in the control group and experimental group develop no complications and had positive outcome (100%) respectively.

- The mean and standard deviation of level of knowledge of nurses were low in pre test (M=14.1, SD=3.32) when compared to post test M =20.6 , SD =2.58) . There was an improvement in the level of knowledge (M = 6.4 , SD = 0.74). This was statistically proven at $p<0.001$ level of confidence and it shows the effectiveness of clinical pathway upon the knowledge of nurses for mothers with caesarean section. Hence the null hypothesis $H_0 1$ was rejected.

- The mean and standard deviation of knowledge on various aspects was low in pre test when compared to post test . This show that the knowledge of nurses has improved after

implementation of clinical pathway(M= 1.8, SD=0.97; M=3.9, SD=0.93), environment, nutrition, elimination and hygiene (M=3.5, SD=1.09; M=4.5, SD=0.74), Mobility, Position, Rest and Sleep, comfort, (M=2.6, SD= 1.21 ; M=3.8,SD = 0.87) and in breast feeding, health education and new born care (M=2.5, SD=1.24; M=4, SD=0.87). The difference was statistically proved $p<0.001$ level of confidence and it was attributed that the effectiveness of clinical pathway upon the knowledge of nurses in various aspects of care.

- The mean and standard deviation of the practice of nurses in control group were less compared to the experimental group of mothers with caesarean section. This shows the practice of the nurses in control and experimental group at day 1(M=85.2, SD=3.59; M = 113.5, SD =1.76), day 2(M=93.7, SD=2.66; M = 113, SD = 2.32), day 3 (M=57.8, SD=5.08; M =75.6, SD = 3.98), day 4 : (M= 49.5 , SD= 3.83; M =71.6, SD= 2.82), day 5 (M = 42.5, SD = 3.89; M= 55.7, SD=0.43). The difference was statistically proved at $p<0.001$ level of confidence and it was attributed that the practice of nurses in experimental group of mothers with caesarean section was effective. Hence the null hypothesis Ho_1 was rejected.

- The mean and standard deviation of practice in component wise is higher in the experimental group compared to control group. The result were statistically significant at $p<0.001$ level of confidence and it shows the effectiveness of clinical pathway upon the practice of nurses for mothers with caesarean section. Hence the null hypothesis Ho_1 was rejected.

- The mean and standard deviation of level of satisfaction of mothers with caesarean section in the control group (M=62.9, SD= 5.01) is low when compared to the experimental group (M=

69.9, SD=5.99). The difference was statistically proved at $p<0.001$ level of confidence and it shows that effectiveness of clinical pathway upon the level of satisfaction of mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

- The mean and standard deviation of level of satisfaction in various component is low in control group when compared to the experimental group. The level of confidence was and the level of satisfaction was improved. This shows that effectiveness of clinical pathway for mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

- The mean and standard deviation of the maternal outcome of mothers with caesarean section in the control group (M=3.26, SD= 3.55) is high when compared to experimental group (M= 0.93, SD=1.43). The result were statistically significant at $p<0.001$ level of confidence and it shows that effectiveness of clinical pathway upon the maternal outcome for mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

- There was no association between the age, religion, educational qualification, type of residence, years of experience, marital status, income per month with the level of knowledge for the nurses in the pre- test and post test. It has proven that there is no association between the selected demographic variables and level of knowledge. Hence the null hypothesis Ho_3 was retained.

- There was no significant association was found between selected demographic variable with the level of satisfaction and maternal outcome in the control group and experimental group of mothers with caesarean section. Hence the null hypothesis Ho_4 was retained.

- There was no significant association was found between selected obstetric variable with the level of satisfaction and maternal outcome in the control group and experimental group of mothers with caesarean section. Hence the null hypothesis Ho_5 was retained.

Recommendations

- The same study can be conducted with larger samples to generalize the results.
- A comparative study can be conducted between the primi and multigravidae.
- A comparative study can be done in two different settings with similar facilities.
- A similar study can be conducted for clinical pathway in other obstetric and gynecological conditions to evaluate best practice of nurses.

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Introduction

CHAPTER I

INTRODUCTION

Background of the Study

"Mother is the name of god in the lips and heart of children"

-William

Pregnancy and childbirth are the special events in woman's lives. Pregnancy is a unique experience which leads to the creation of a new life. Pregnancy connects mother and fetus together and is the basis for producing the generation. This new life results in the creation of much new and unexpected relationship. Ensuring safe pregnancy and motherhood occupies a pivotal role and has been considered as one of the key issues in the framework of reproductive and child health programmes. Motherhood is a beautiful process whereby the mother safely delivers the child. It is a magic of creation.

Worldwide every year, an average birthrate was 19.95/1000 total population based on WHO report in 2008. Each year there are approximately 6 million births in the U.S. In India, 128.9 million births occur per year and the birthrate in Tamilnadu and Chennai in the year 2009 was 16.3/1000 births and 15.3/1000 births respectively. Thus mothers undergo either normal vaginal delivery or caesarean section . In November 2005, the Centers for Disease Control and Prevention (CDC) reported the national caesarean birth rate was the highest ever at 29.1%.This means that over 1 in 4 women will experience a caesarean birth. As the women experience the joy of pregnancy they have the right to enjoy the childbirth, instead of having painful childbirth.

World wide every year approximately eight million women suffer from pregnancy related complications. Caesarean section are usually performed to ensure safety of the mother and child under conditions of obstetric risk. Caesarean section may be due to cephalo-pelvic disproportion and contracted pelvis, dystocia due to soft parts, inadequate uterine forces, antepartum haemorrhage, pre-eclamptic toxaemia, eclampsia, foetal distress and prolapse of the cord, malpresentation, maternal diseases such as heart problems, bad obstetric history, habitual intra-uterine death of the foetus and elderly primigravida.

The standards of practice identified by the American nurses association (ANA) 2004 are based on the nursing process. There are various models and standards which are developed throughout the world with the aim of enhancing the quality and promoting uniformity in care. Standards are professionally developed expressions of the range of acceptable variations from a norm or criterion. All standards of practice provide a guide to the knowledge, skills; judgment & attitudes that are needed to practice safely. They reflect a desired and achievable level of performance against which actual performance can be compared. Their main purpose is to promote, guide and direct professional nursing practice.

Nursing is considered to be a service to mankind. Nursing care is a action, reaction, interaction and transaction where by nurses assist people of any age group, meet their basic needs in performing activities of daily living and cope with health and illness. Nursing process is a patient centered, goal oriented method of caring that provides a framework to the nursing care. The component of nursing process includes assessment, diagnosis , outcome identification, planning , implementation and evaluation. The advantage of nursing process is dynamic to meet

the ever changing needs of the client and interactive because it involves reciprocal interpersonal relationships between the nurse and the client, family, significant others, and other health team members.

Clinical pathways also known as care pathways, critical pathways , integrated care pathways and care maps, which is one of the main tools used to manage the quality in health care concerning the standardization of care processes, for a specific group of patients with a predictable clinical course. It has been proven that their implementation reduces variability in clinical practice and improves the outcomes. It also promotes organized and efficient patient care based on the evidence based practice. Outcomes are tied to specific interventions.

Clinical Pathways has a number of advantages and benefits which include, promoting patient focused care because patients can participate in what is planned and can give feedback on whether outcomes have been achieved, providing for patient education and the provision of information regarding care provided , facilitating collaboration within the multidisciplinary team in the continuum of care, identifying tests and investigations to be ordered and completed , documentation reduces duplication within the clinical record.

Clinical pathway for mother with caesarean section enhances the nursing care from the time of admission till discharge. The components of care for mother with caesarean section includes assessment, nutrition, elimination, comfort, hygiene, safety, medication breast feeding, health education are performed by the nurses. Moody, Choong, & Greenwood. (2001). Conducted a study on action research approach to the development of a clinical pathway for women requiring caesarean sections. The clinical pathway itself became a document that facilitated the

education of the women, improving their preparation for discharge and improved the continuity of care by enhancing the multidisciplinary approach to the women's care.

The investigator observed in the clinical area that only few activities are performed by the nurses . Thus the investigator was motivated to develop clinical pathway for mothers with caesarean section which is simple , easy and can be easily practiced by the nurses. It promotes the level of satisfaction, prevention of complication, reduces the length of stay which contributes to effective care. It increases the knowledge and practice of nurses and promotes the wellbeing of the mother.

Need for the Study

Pregnancy and child birth are the vital events in the life of the woman. Though pregnancy and child birth are the natural processes, they are not risk free of major complications, because all pregnancies and delivery are potentially at risk. Pregnancy and delivery complications are major determinants of caesarean births. When treatment seeking behavior of the women of those women who have pregnancy complication are considered the results showed that there is higher chance of caesarean birth for the those who have sought treatment for their complications.

WHO reviewed 107,950 births from nine countries in Asia, including India, China, Japan, Nepal and Sri Lanka, during 2007-2008, and found that 27 percent births were delivered by caesarean section. Out of 107,950 births, 24,000 were from Indian states of Madhya Pradesh, New Delhi and Gujarat. Majority of the states are within the WHO specified range of five to fifteen percent caesarean section. Kerala has the highest percentage of caesarean section with

25.74 percent of all births, Tamilnadu with caesarean section rate of 17.28 percent and in Chennai it is about 45% respectively.

Nursing care is the important and essential care which has the priority to promote comfort and general wellbeing , Prevent minimize postoperative complications, Promote a positive emotional response to birth experience and parenting role, Provide information regarding postoperative needs. Nursing process was used in the study for a more systematic to care for a client who have undergone a cesarean section birth.. advantages of utilizing the nursing process are ensuring that the care patients receive is planned, ensuring it to meet the individual and specific needs, ensuring the continuity of care amongst professionals as they would all follow a specific plan and the outcomes of care have been achieved.

Care pathway is a bedside document and acts as a legal record of the care the patient, and the progress of their condition. The pathway design tries to capture the best practice for the patients in time, and pathway document to ascertain whether they have been carried out, and whether results have been as expected. It capture information on "variances", where due to circumstances or clinical judgment different actions have been taken, or different results unfolded. The combined variances for a sufficiently large population of patients are then analyzed to identify important or systematic features, which can be used to improve the care.

The best practice of clinical pathways for uncomplicated births was analyzed by Oberer, & Auckerman. (2004). The aim is to provide high-quality, cost-effective, and clinically efficient obstetric and newborn care under the constraints of a reduced length of stay. Successful implementation of the clinical pathways has decreased the average length of stay for

uncomplicated deliveries from 2.02 to 1.67 days and for normal newborns from 1.99 to 1.43 days. They conclude that there is no increase in variance after implementing clinical pathway.

So far, in the recent past, no such study has been done in Tamil Nadu regarding clinical pathway for mothers with caesarean section and no such protocol are formulated. The investigator has observed that clinical pathways are not carried out in any hospital regarding mothers with caesarean section and need decrease in their length of stay. Thus the investigator was motivated to prepare clinical pathway as a protocol for mothers with caesarean section for the promotion of healthy mother and child. Hence the investigator felt that it is essential for the mothers with caesarean section.

Statement of the Problem

A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Mothers with Caesarean Section upon the Knowledge and Practice of Nurses and Maternal Outcome at Apollo First Med Hospital, Chennai.

Objectives of the Study

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section.
2. To evaluate the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses.
3. To assess and compare the maternal outcome in control and experimental group regarding clinical pathway for mothers with caesarean section.

4. To determine the level of satisfaction upon the nursing care in the control and experimental group of mothers with caesarean section.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section.
6. To determine the association between the selected demographic variables with level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.
7. To determine the association between the selected obstetrical variables with level of Satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

Operational Definitions

Effectiveness

In this study, it refers to the difference between the pre & post test knowledge and practice scores of nurses on clinical pathway for mothers with caesarean section.

The effectiveness is also measured by comparing the control and experimental group of maternal outcome in terms of their length of stay, prevention of complications and satisfaction.

Clinical pathway

It is an algorithm developed by the researcher which will be used by the nurse as a guiding tool for providing care for mothers with caesarean section from the time of admission till discharge. They provide detailed guidance for each step in the management of the mother over a given time period and include the mothers progress and outcome details.

Mothers with caesarean section

It refers to the mothers who delivered a viable baby by an incision made on the abdominal wall and uterus which needs hospitalization of mother for 5 days.

Knowledge

It this study it refers to the level of understanding and awareness of nurses regarding clinical pathway for mothers with caesarean section measured in terms of structured questionnaires on clinical pathway as developed by the researcher.

Practice

It is the nursing care provided by the nurses for mothers with caesarean section and is measured in terms of compliant with clinical pathway.

Nurses

A registered nursing professional with the qualification of general nursing and midwifery, Bachelor of science in nursing working in A, D, E, H, I , Labour ward, recovery and provides care for mothers with caesarean section .

Clinical pathway for caesarean section

It refers to the guidelines for nursing care of mothers with caesarean section from admission till discharge including preoperative and post operative care that is formulated by the researcher based on the basic needs of Henderson's 14 activities for 5 days. The aspects includes assessment, oxygenation , nutrition, elimination, mobility, rest and sleep, comfort, hygiene, wound care, safety, medication, communication, spiritual needs, diversional activity, psychological aspects, breast feeding and health education.

Outcome

In this study it refers to length of stay in the hospital, prevention of complications and level of satisfaction of mothers regarding nursing care as measured in terms of outcome rating scale.

Assumptions

The study assumes that :

- Nurses require guiding tool for implementation of nursing care.
- Any surgical intervention requires nursing care and hospitalisation.
- Standardised and guidelines improve uniformity of care.
- Clinical pathways provide explicit and well defined standards of care.

Null Hypotheses

Ho_1 There will be no significant difference between pre & post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section.

Ho_2 There will be no significant difference in the maternal outcome and level of satisfaction between the control and experimental group of mothers with caesarean section.

Ho_3 There will be no significant association between the selected demographic variables of nurses and their pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section.

Ho_4 There will be no significant association between the selected demographic variables with the level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

Ho_5 There will be no significant association between the selected obstetric variables with the level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

Delimitations

The study was limited to mother who were

- admitted in Apollo Hospitals, Chennai.
- between 37-42 weeks of gestation.
- undergoing elective or emergency caesarean section.
- willing to participate in the study.

The study was limited to nurses who were

- working in Apollo Hospitals, Chennai.
- taking care of mothers with caesarean section.
- available at the time of data collection.

Conceptual Framework

The Conceptual framework for a particular study is the abstract, logical structure that enables the researcher to link the findings to nursing body of knowledge.

The conceptual framework of the present study was based on "King's Goal Attainment Model" (1981). This model addresses process of action, reaction, interaction whereby nurses and clients share information about their perception. Through perception and communication they identify the problems through which they set goals and take necessary action.

The framework was selected for the present study as it provides a way of understanding and predicting the throughout the concepts of perception, judgement, action, reaction, interaction, transaction and feedback between the nurse and mothers with caesarean section . The components of the model incorporated in the study are as follows:

Perception

A person imports energy from the environment and transforms processes and stores it. The study assumed that there was interpersonal relationship between midwife and the mothers with caesarean section. The nurse researches perceived the need for clinical pathway. This imposed the protocol for providing organized care for the mother.

Judgment

Analyze the areas of action to be carried out. Thus nurse researcher analyzed that clinical pathway will prevent the complications, reduces the length of stay and promotes the level of satisfaction. The mother analyzed those clinical pathways which provide excellent nursing care.

Action

Individual exports the perceived energy as demonstrated by observable behavior by taking mental or physical action. In this study, the nurse researcher is providing clinical pathway for nurses. In the experimental group of mothers care is given after implementation of clinical pathway and for the control group no interventions are provided.

Reaction

Reaction means developing action and acting on perceived choices for goal attainment.. Both the nurse researcher and the participants planned for reaction. For the experimental group

efforts were taken to implement clinical pathway and provide care accordingly and the control group did not receive any intervention.

Interaction

Refers to verbal and non-verbal behavior between an individual and the environment or between two or more individuals. It involves goals directed communication. Action leads to interaction where the researcher implement the clinical pathway for nurses and mothers with caesarean section in the experimental group received nursing care according to clinical pathway, for reducing the length of stay, prevention of complication and improves the level of satisfaction whereas the control group underwent conventional nursing care.

Transaction

Imogene King believed that transaction is the mutually defend goals of two or more individuals and the means to achieve them. They reach an agreement about how to attain these goals and then set about to realize them. Thus, the nurse researcher set a goal to use clinical pathway as an effective tool for rendering care for mother with caesarean section. In the control group, the existing practice, level of satisfaction, maternal outcome will be assessed. In the experimental group , practice after implementing clinical pathway, level of satisfaction, maternal outcome will be assessed.

Feed back

The outcome may either be satisfactory or unsatisfactory level of satisfaction. Satisfactory indicates that the clinical pathway was effective. Unsatisfactory leads to rearrangement of the

care in clinical pathway. Researcher adopted this model and perceived apt in enabling to assess the effectiveness of clinical pathway for mothers with caesarean section.

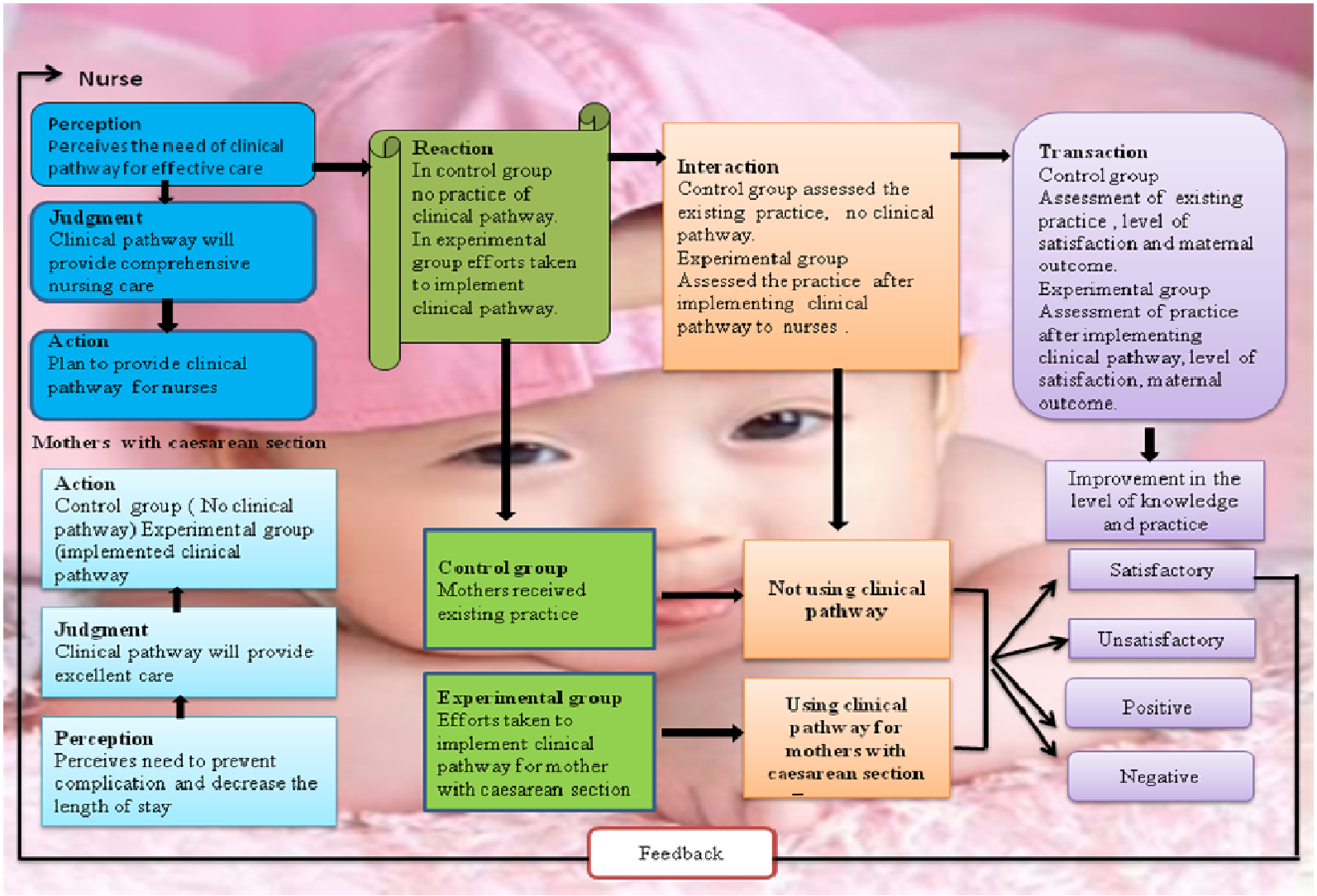

Fig.1. Conceptual Framework Based on King's Goal Attainment Model (1981)

Projected Outcome

This study will useful to enhance the level of knowledge among the nurses on clinical pathway and their practice and improves in the level of satisfaction and the maternal outcome of mothers with caesarean section.

Summary

This chapter has dealt with background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypothesis, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following chapters.

Chapter II consists of review of literature

Chapter III consists of research methodology which includes research approach, research design, setting, population, sample, sampling technique, tools used in the study, data collection procedure and plan for data analysis.

Chapter IV deals with analysis and interpretation of data done through descriptive and inferential statistics.

Chapter V has Discussion

Chapter VI consists of summary, conclusion, implications, recommendations and limitations.

Chapter II

Review of literature

CHAPTER II

REVIEW OF LITERATURE

A critical summary of research on a topic of interest, often prepared to put a research problem in context (Polit, 2010).

The review of literature provides information, ideas, data and evidence to the researcher written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated. The review helped the researcher to develop an insight into problem area. This helped the researcher in building the foundation of the study.

The review of literature in this chapter has been presented under the following heading:

- Literature related to caesarean section
- Literature related to clinical pathway
- Literature related to effectiveness clinical pathway for mothers with caesarean section.

Literature related to caesarean section

In the year 2009, a study to assess the effects of planned caesarean section for singleton breech presentation at term on measures of pregnancy outcome was carried out by Hofmeyr & Hannah. The findings revealed that planned caesarean section compared with planned vaginal birth reduces the perinatal or neonatal death or serious neonatal morbidity, at the expense of somewhat increased maternal morbidity. At three months after delivery,

women allocated to the planned caesarean section group reported less urinary incontinence, slight abdominal pain and less perineal pain.

A population-based study was conducted by Algert et al. (2009). regarding regional block versus general anesthesia for caesarean section and neonatal outcomes. The relative risks were largest for low-risk planned repeat caesarean deliveries, resuscitation with intubation relative risk was 12.8 and Apgar at 5minute is <7 relative risk was 13.4. The largest absolute increase in risk was for unplanned caesareans due to foetal distress. Anesthesia guidelines recommend regional anaesthesia for most caesarean sections due to the risk of failed intubation and aspiration with general anaesthesia. However, general anaesthesia is considered to be safe for the foetus, and is still used for caesarean sections.

Alan and Lanson. (2009). carried out a research to evaluate the timing of elective repeat cesarean delivery at term and neonatal outcomes. Of 24,077 repeat cesarean deliveries at term, 13,258 were performed electively; of these, 35.8% were performed before 39 completed weeks of gestation and 49.1% at 39 weeks of gestation. As compared with births at 39 weeks, births at 37 weeks and at 38 weeks were associated with an increased risk of the primary outcome . Hospitalization were increased by 1.8 to 4.2 for births at 37 weeks and 1.3 to 2.1 for births at 38 weeks and decreased risk in 39 weeks to term.

Lower levels of maternal education were associated with higher maternal mortality was concluded by a cross sectional WHO global survey on maternal and perinatal health analyses. A total of 373 health care institutions in 24 countries were analyzed of which,

women with no education had 2.7 times and those with between one and six years of education had twice the risk of maternal mortality of women with more than 12 years of education. There was a significantly higher risk of death among those aged over 35, those with higher numbers of previous births and lower levels of state investment in health care (Karlsen et al. 2008).

Baxter & Macfarlane. (2005). evaluated the skill mix for post caesarean care. Registered general nurses and nursery nurses were recruited to provide support for midwives in caring for women postnatally. The nurses would support the women with their specific nursing needs while they recovered from surgery and nursery nurses would help women care for their babies. The aim was to free up more time for midwives to spend giving specific midwifery care. A postal questionnaire was sent to women who gave birth by caesarean before and after the nurses and nursery nurses were recruited. The introduction of these new roles appears to have improved care for women who experienced birth by caesarean section.

A case control study to find out the occurrence of cesarean section and to probe the factors associated with caesarean section was conducted by Cheng et al.(2003). Among 14,071 childbirth women, 6,421 had caesarean section with the occurrence rate of 45.6% and 7,650 had normal delivery at a rate of 54.4%. This study indicated that the higher the educational level and older the pregnant women were, the rate of caesarean section was high. The higher rate of caesarean section was more likely to associate with abnormal

physiological & medical factors like cephalopelvic disproportion, intrauterine asphyxia, abnormality of force of labor, and prolonged labour, etc.

The steady rise in caesarean section rates was conducted by Mehta, Apers, Verstraelen and Temmerman. (2000). as a retrospective cohort study .The study examined the observed time-trends in caesarean section rates in relation to perinatal mortality rates and maternal case-fatality rates in a hospital setting in Mumbai, India, using 1957-1998 data. Since it is an emerging area of concern in mother-child healthcare and a matter of international attention, since the trend is no longer confined to western industrialized countries. Both overall rates and those specific to type of delivery were assessed. During 1957-1998, the caesarean section rates in the maternity hospital increased from 1.9% to 16%, with the most significant rise over the past decade.

Literature related to clinical pathway

A study was conducted to find out the effectiveness of implementing clinical pathway in decreasing the postoperative length of stay and cost in liver resection surgery. A total of 117 patients was selected in which 61 patients were given usual care and 56 patients were given care using clinical pathway .The post pathway group had a significantly shorter post operative length of stay (7 vs 11 days, P=0.01), the preoperative hospital charges were reduced (P=0.05). The study concluded that implementation of the clinical pathway is an effective in reducing postoperative length of stay and cost (Xin et al. 2011).

In tertiary-care academic medical center at USA a study to assess the use of critical pathways to improve efficiency in reducing patient length of stay and resource utilization, was conducted by Blegen , Reiter, Goode and Murphy. (2008) . Three of the 13 pathways were associated with a statistically significant immediate decrease in inpatient length of stay. They are: acute myocardial infarction (20.7% decrease; P =.001), cesarean section (14.6% decrease; P = .03), and kidney transplantation (24.5% decrease; P = .003). Only 1 pathway, percutaneous transluminal coronary angioplasty (PTCA), produced a statistically significant decrease in length of stay slope(P = .001). They conclude that critical pathways reduce length of stay or resource utilization or both.

Rotter et al. (2008). analyze the existing evidence base for clinical pathways via a rigorous systematic review. Systematic reviews and meta-analyses provide a high level of evidence for the effectiveness of interventions. This analysis states the effectiveness of clinical pathways in hospitals, based on professional practice, patient outcomes, length of stay and hospital costs. A pathway reflects the activities of a multidisciplinary team and can incorporate established guidelines and evidence-based medicine.

To find the feasibility of clinical pathway and reduction in the unnecessary use of pap testing for asymptomatic screening and surveillance for gynecologic cancers Santillan et al. conducted a prospective study at Johns Hopkins Medical Institutions, USA from 7th January 05 to 30th may 06. In this study 1725 Pap tests were collected at a rate of 30.8% and an annualized cost of $93,759, After implementation of the clinical pathway, annual Pap test rate of 11% and an annual cost of $35,728, a savings of $58,031.He also conclude

that clinical pathway implementation also helps in cost savings and nursing personnel work hours.

In the year 2005, a retrospective study to assess the pathways, outcomes, and costs in colon cancer in two distinct databases was conducted by Hoverman et al. Disease-free survival in patients receiving adjuvant treatment was calculated in the first study. The second study used claims data from a national administrative claims database to examine direct medical costs and use, including the cost of chemotherapy and of chemotherapy-related hospitalizations according to pathway status. Overall costs per case and chemotherapy costs-were lower for patients treated according to Level I Pathways compared with patients not treated according to Level I Pathways. Use of pathways was also associated with a shorter duration of therapy and lower rate of chemotherapy-related hospital admissions.

The clinical pathway can improve length of stay, total costs and quality was concluded as a retrospective study by Cheng and Shiung . (2004). He conducted the study, to examine the length of stay, total costs and quality including the complications, morbidity and readmissions for total knee replacement surgery. The data before clinical pathway was from June 2001 to May 2002, total 219 cases. After clinical pathway, the data was from Jan. 2003 to Dec. 2003, total 207 cases. The results showed decrease length of stay from 7.4 to 6.6 days (10.8%), decrease total cost from 125,324 NTS to 119,100 NTS (4.97%) and the quality of complications and readmissions did not increase.

In the year 2004, the best practice of clinical pathways for uncomplicated births was analyzed by Oberer and Auckerman. The main aim is to analyze the high-quality, cost-effective, and clinically efficient obstetric and newborn care under the constraints of a reduced length of stay through clinical pathways. Successful implementation of the clinical pathways has decreased the average length of stay for uncomplicated deliveries from 2.02 to 1.67 days and for normal newborns from 1.99 to 1.43 days. They conclude that there is no increase in variance after implementing clinical pathway.

Panelle et al. (2003). conducted the pre and post-analysis model to evaluate clinical pathways in a variety of Italian health care organizations to measure performance in decreasing process and outcome variations. He conclude that the overall purpose of clinical pathways is to improve outcome by providing a mechanism to coordinate care and to reduce fragmentation, and ultimately cost.

An ontology-based approach of modeling clinical pathway workflows at the semantic level for facilitating computerized clinical pathway implementation and efficient delivery of high-quality healthcare services was proposed by Ye et al.(2002). Clinical pathways is interconnected hierarchical models including the top level outcome flow and intervention workflow level along a care timeline. An illustrative example about a clinical pathway for cesarean section shows the applicability of the proposed methodology in enabling structured semantic descriptions of any real clinical pathway.

Pearson. (2001). Conducted a study to found the effectiveness of clinical pathways interventions to reduce the length of hospital stay among 6,796 patients undergo one of the

following procedures during the study. The percentage of eligible patients managed on a critical pathway ranged from 94% for hysterectomy to 26% for colectomy. For most procedures, the postoperative length of stay was decreasing during the baseline period. After pathway implementation, the length of stay decreased 21% for total knee replacement, 9% for CABG surgery, 7% for thoracic surgery, 5% for hysterectomy, and 3% for colectomy (all P <0.01). Critical pathways were associated with a rapid reduction in postoperative length of stay after all five study procedures.

A retrospective cohort study was conducted by Carlos et al. (2000). to compare the assessment of a clinical pathway for community-acquired pneumonia. Compared with patients receiving usual care (n=275), patients in the pathway group (n=97) were more likely to be treated by family physicians than specialists and had lower pneumonia severity scores. In the unadjusted analysis, total hospital charges were lower among pathway patients and in the adjusted analysis, the difference in total charges was smaller. In the unadjusted analysis, length of stay was lower among pathway patients and in the adjusted analysis, the difference in length of stay was smaller. Thus, Clinical pathways may reduce costs and improve quality of care in community-acquired pneumonia.

The clinical pathway must include a means to identify variances easily and to determine whether the outcome is met was concluded by Middleton et al. (2000) . He states that clinical pathway provides direction for managing the care of a specific patient during specified time period. It is also useful because they accommodate a unique characteristics of the patient and patients condition .It use resources appropriate to the care

needed and the reduced cost and length of the stay . Some features are such as specific medical diagnosis, the expected length of stay, patient identification data, appropriate time frames for interventions and patients outcomes.

In the year 1995 an experimental research to evaluate the effect of a care map and nursing case management on patient satisfaction and staff job satisfaction, collaboration, and autonomy was conducted by Goodle et al. The patients who had a care map were satisfied with their care. The multidisciplinary staff who worked on the experimental unit had increased job satisfaction and nurses had higher levels of collaboration and increased autonomy. Multidisciplinary team members who developed the Care map also had higher levels of collaboration and their job satisfaction with quality of care increased under this new care delivery system.

Literature related to clinical pathway for mothers with caesarean section

Eichenberger et al.(2011). conducted a retrospective cohort study regarding clinical pathway in a post-anesthesia care unit to reduce length of stay, mortality and unplanned intensive care unit admission. After implementation, the median post-anesthesia care unit length of stay decreased for all patients from 163min to 148min . In-hospital mortality decreased for all patients from 1.7 to 0.9%. The number of unplanned admissions to the ICU decreased from 2.8% to 2.1%. He concluded that clinical pathway in a post-anesthesia care unit can significantly reduce length of stay and can improve post-operative outcome.

In Chinese hospital a controlled trial of clinical pathway of elective cesarean section was conducted by Jinghua et al. (2010). In this patient satisfaction was chosen as the

suitable indicator to judge the effect of clinical pathway. A total of 232 satisfaction survey results were collected. Usually, the survey data collected from clinical pathway group and control group are regarded as in the same quality level so they are directly compared with each other to demonstrate the effectiveness of clinical pathway. This states that clinical pathway can improve the quality through stimulating interactions between patients and the medical staff.

Wanyony and Karuga. (2010). evaluated the utility of clinical care pathways in determining perinatal outcomes for women with one previous caesarean section as a retrospective study in Kenya. A total of 215 women with one previous caesarean section were followed up using a standard care pathway. The Outcome measures included are the proportion of eligible women who opted for test of scar proportion on women opting for elective repeat caesarean section and their perinatal outcomes. They conclude that besides ensuring standardized management, care pathways acts as objective audit and service evaluation tools for determining perinatal outcomes.

A pre- and post implementation analysis model was used to evaluate the effect of introducing a care pathway for childbirth by Marchisio et al. (2008). There was a significant reduction in episiotomy rate (from 14.90% to 8.6%, $P = 0.02$) in patients being cared for using a care pathway approach. The average costs per patient on the care pathway were pound 873.6 compared with pound 783.74 pre implementation. There is a increase in patient satisfaction using the care pathway approach. The study conclude that the care

pathway proved to be a valid methodological approach to childbirth, allowing healthcare workers to efficiently share the care of the women, guaranteeing safe and effective care.

Moody, Choong and Greenwood. (2001). conducted a study on action research approach to the development of a clinical pathway for women requiring caesarean sections. This research allowed the development of the clinical pathway for women having a caesarean section to be progressively modified to adapt it to suit the needs of the multidisciplinary team. The clinical pathway itself became a document that facilitated the education of the women, improving their preparation for discharge and improved the continuity of care by enhancing the multidisciplinary approach to the women's care.

Summary

This chapter deals with the review of literature related to the problem stated. The literatures were taken from the 25 primary sources. It helped the researcher to develop tools, collect data, organize and analyze the data. . It has also enabled the investigator to design the study, develop the tool, and plan the data collection procedure and to analyze the data.

Chapter III

Research Methodology

CHAPTER III

RESEARCH METHODOLOGY

A critical summary of research on a topic of interest, often prepared to put a research problem in context (Polit and Beck, 2008).

This chapter deals with the methodology adopted by the researcher for the study includes research approach, research design, the setting, population, sample and Sampling techniques, development and description tool, validity, reliability, pilot study, data collection procedure, plan for data analysis.

Research Approach

Research approach is the most significant part of any research. The appropriate choice of the research approach depends on the purpose of the research study which is undertaken. According to Polit and Beck (2008) evaluative research is an extremely applied form of research and involves finding out how well a programme, the practice or policy is working. Its goal is to evaluate the success of the programme. In this study, the investigator wants to assess the knowledge of nurses and effectiveness of clinical pathway by using experimental research design.

Research Design

A research design incorporates the most important methodological design that a researcher works in conducting a research study (Polit and Beck 2010).

A Quasi-experimental research design was adopted for this study. Since there were

a limited number of nurses, one group pre and post test design was adopted for nurses. In this study, the investigator administered pre-test for the selected nurses and the investigator manipulated the independent variables i.e. administration of clinical pathway for the same group of nurses and the post test was conducted.

The research design is represented diagrammatically as follows:

Nurses

O1 X O2

O1 - Pre test to assess the knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section .

X - Structured teaching on clinical pathway for mothers with caesarean section.

O2 - Post test to assess the gained knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section .

Mothers

\- O1

X O1

X - Implementation of Clinical pathway for mothers with caesarean section.

O1 - Assessment of level of satisfaction and maternal outcome of nursing care.

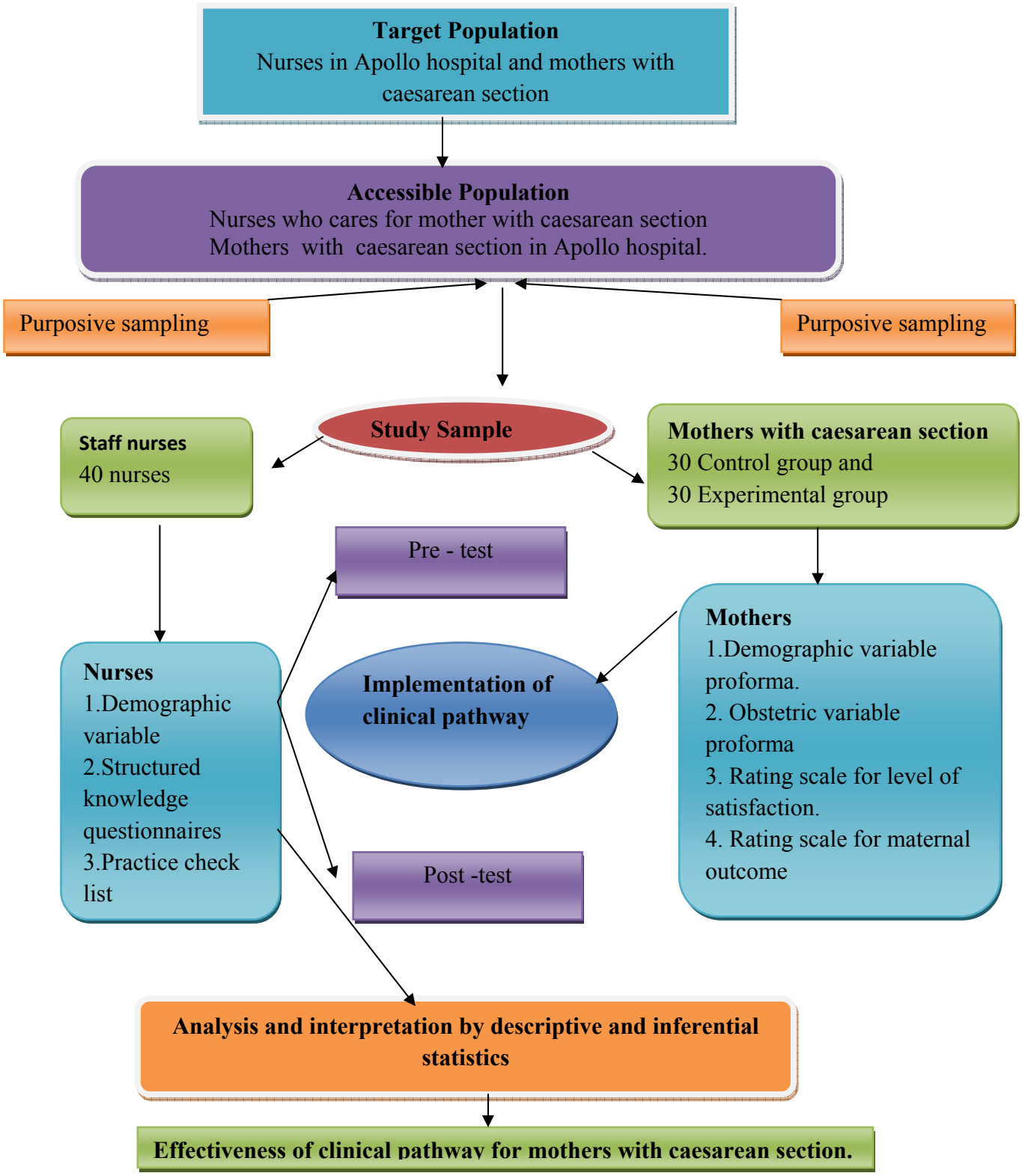

Fig. 2 Schematic Representation of the Research Designs

Variables

Independent variable

The variable is believed to cause or influence the dependent variable is the independent variable (Polit and Beck, 2008). The independent variable for this study was the clinical pathway for mother with caesarean section.

Dependent variable

The variable hypothesized to depend on or be caused by another variable is the dependent variable (Polit and Beck, 2008). The dependent variable for this study was knowledge and practice of nurses and maternal outcome.

Extraneous variable

A variable that confounds the relationship between the independent and dependent variables (Polit and Beck, 2008). In this study, the extraneous variables were demographic variable proforma for nurses, demographic variable proforma and obstetric variable proforma for mothers with caesarean section.

Research Setting

The study was conducted in Apollo First Med hospital, Chennai. The hospital has 120 beds and it is a multispecialty hospital. The hospital consists of labour room, operation theatre, postoperative ward, post natal ward, neonatal ICU, and outpatient department with scan facilities. An average of 60-80 mothers are undergoing caesarean section in a month. Labour ward consists of two labour table with all special equipments such as CTG

machine, life saving equipments and emergency medications to manage and identify the mothers with complications. It has three rooms to admit mothers before delivery. Post natal wards are A, D, E, I, H ward where mothers with caesarean section was admitted. Post natal ward consists of private rooms, life saving equipments and emergency medications to manage the mothers on both normal and obstetrical emergencies.

Population

Population is the entire set of individuals or objects having some common characteristics. (Polit and Beck 2008). The **target population** is the entire population, in which a researcher is interested and to which he or she would like to generalize the study results. In this study, the target population comprises of nurses and all mothers with caesarean section in Apollo First Med Hospital. The **accessible population** is the list of population that the researcher finds in study area. The accessible population in this study were nurses working in post natal wards who care for mothers with caesarean section and mothers with caesarean section in Apollo First Med Hospital, Chennai.

Sample Size

Polit and Beck (2008) said that sample is a subset of population, selected to participate in a study. A sample of 40 nurses and 60 mothers with caesarean section in Apollo First Med hospitals was selected for this study, among which 30 mothers was selected in the control group and 30 mothers in the experimental group.

Sampling Technique

Sampling is the process of selecting a portion of the population to represent the entire population (Polit and Beck 2008). Purposive Sampling technique was used in this study for nurses and for mothers with caesarean section. The nurses and mothers who satisfied the inclusion criteria were selected for the study.

Sampling Criteria

Inclusion criteria

The Study includes nurses who

- were taking care of mothers with caesarean section.
- available in the shift at the time of data collection **.**
- who were able to read and write English.

The Study includes mothers

- with previous caesarean section.
- between 37-42 weeks of gestation .
- with complicated pregnancy .
- available at the time of data collection.
- who were able to read and write English .
- who were willing to participate in the study.

Exclusion Criteria

The study excluded mothers

- who were not willing to participate in the study.

- with gestational age ≤36 weeks.
- who could not understand and speak English.

Selection and Development of the Study Instruments

As the study aimed to evaluate the effectiveness of clinical pathway for mothers with caesarean section, the data collection instruments were developed through an extensive review of literature. The instruments used in this study were demographic variable proforma for nurses and mother, obstetric variable proforma for mothers with caesarean section, structured knowledge questionnaire, practice checklist, rating scale on level of satisfaction and maternal outcome for mothers with caesarean section.

Demographic variable proforma for nurses

Demographic variable Proforma for nurses consists of age, religion, educational status, marital status, type of residential area, year of experience, monthly income, previous information about the clinical pathway.

Demographic variable proforma for mothers with caesarean section

Demographic Proforma for mothers consists of age, religion, education, occupation, age at marriage, type of family, family monthly income.

Obstetric variable proforma for mothers with caesarean section

Obstetric variable proforma consists of gestational age in weeks, gravida, type of previous delivery, number of antenatal visits, indication, type of caesarean section, type of anesthesia, co morbidity, complications arises during post operative period, length of stay.

Clinical pathway for mothers with caesarean section

The researcher developed the clinical pathway for mothers with caesarean section by extensive review of literature, participatory observation of nursing care from admission to discharge and getting suggestion from health care team members including obstetrician, nursing officers, staff nurses, physiotherapist & dietician. Henderson's 14 basic needs was the basis for the pathway. After formulating, the pathway was validated by the experts.

Henderson identified 14 basic needs of the mothers, which comprise the components of nursing care. These include the following needs.

1. Breathe normally
2. Eat and drink adequately
3. Eliminate body wastes
4. Move and maintain desirable postures
5. Sleep and rest
6. Select suitable clothes- dress and undress
7. Maintain body temperature within normal range by adjusting clothing and modifying the environment
8. Keep the body clean and well groomed and protect the integument
9. Avoid dangers in the environment and avoid injuring others
10. Communicate with others in expressing emotions, needs, fears or opinions
11. Worship according to ones faith
12. Work in such a way that there is a sense of accomplishment

13. Play or participate in various forms of recreation
14. Learn, discover or satisfy the curiosity that leads to normal development and health and use the available health facilities

Clinical pathway was prepared based on mother's need followed by Henderson's theory of 14 basic needs and based on activities by the investigator with an approval of objectives, Care pathway and pre op day to follow up care for 5 days. The aspects included were admission, assessment, oxygenation, nutrition, elimination, sleep and rest, mobility and comfort, personal hygiene, communication, activity, safety, spiritual needs, diversional needs, breast feeding, health teaching, and discharge plan. The staff nurse instructed to follow the clinical pathway for providing care for mothers with caesarean section. The clinical pathway form was attached with the mothers file and the nurse caring for the mother should act according to it and document it. If any variances are observed, it should be noted in the pathway.

Structured knowledge questionnaire for nurses regarding clinical pathway for mothers with caesarean section

This structured questionnaire schedule is used to collect information on knowledge of nurse regarding clinical pathway for mothers with caesarean section .This was framed very carefully, considering the language, clarity, organization and sequence of items. The questions were formulated and options were given below each questions. Structured questionnaire on knowledge consisted of 25 multiple choice of questions on knowledge regarding clinical pathway, activities of daily living like nutrition, elimination, hygiene,

mobility , position , rest and sleep, comfort, safety, vital signs, pain assessment , wound care , health education, breast feeding and newborn care. Each question had four option which included one right answer. The subjects were to choose any option for each question. Every correct answer was assigned a scores of 1 and wrong as 0 . The knowledge scores were classified into 3 levels.

Score	Percentage	Interpretation
<12.5	<50	Inadequate knowledge
12.6-18.75	51- 75	Moderate knowledge
18.76-25	>76	Adequate knowledge

Practice check list for nurses caring for mothers with caesarean section

Compliant is activity that has been completed by the nurse, partially compliant this indicates attempt to perform, but not completed, non compliant this indicates unable to complete a specific activity by nurses. The checklist includes assessment, breathing, nutrition, elimination, mobility, rest & sleep, comfort, hygiene, wound care, safety, medications, communication, spiritual, activity, psychological aspects, breast feeding, health education. Practice was measured in terms of

Scoring key:

Day 1

Score	Percentage	Interpretation
0 – 60	≤50%	Non compliant

61-90	51 – 75%	Partially compliant
91-120	>75%	Compliant

Day 2

Score	**Percentage**	**Interpretation**
0 – 57	≤50%	Non compliant
58-66	51 – 75%	Partially compliant
87-116	>75%	Compliant

Day 3

Score	**Percentage**	**Interpretation**
0 – 38	≤50%	Non compliant
39 – 57	51 – 75%	Partially compliant
58 – 78	>75%	Compliant

Day 4

Score	**Percentage**	**Interpretation**
0 – 37	≤50%	Non compliant
38-56	51 – 75%	Partially compliant
57-76	>75%	Compliant

Day 5

Score	**Percentage**	**Interpretation**
0 – 27	≤50%	Non compliant
28-41	51 – 75%	Partially compliant
42-56	>75%	Compliant

Rating scale on satisfaction for mothers with caesarean section

This rating scale was designed to assess the level of satisfaction of mothers regarding nursing care before and after implementation of clinical pathway for mothers with caesarean section. It includes satisfaction regarding general nursing care, environment, hygiene, nutrition, elimination, mobility, position, rest and sleep, spiritual, psychological and health education. The satisfaction score were classified into 3 levels

Score	Percentage	Interpretation
1-20	<50%	Low satisfaction
21-40	51 - 75%	Moderate satisfaction
41-80	>76%	High satisfaction

Rating scale for maternal outcome for mothers with caesarean section

It is a rating scale collected by researcher as observing on maternal outcome including condition of the mother, contraction of the uterus, oxygenation, nutrition, elimination, rest, comfort, regulatory functions , personal hygiene, communication, activity, diversional needs, health teaching and condition of the baby and length of stay which range from no to major complications.

Scores	Percentage	Interpretation
<14	≤50%	Negative outcome
14.01-21	51-75%	Moderately positive outcome
21.01-28	≥ 76%	Positive outcome

Psychometric Properties of the Instruments

Validity

Validity is the degree to which an instrument measures what it is intended to measure (Polit, 2010).

Content validity of the tool was obtained by getting opinion from seven experts in the field of Obstetrics and Gynecology. The Validators had suggested some specific modification in the clinical pathway checklist and rating scale. The modification and suggestions of experts were incorporated in the final preparation of the structured questionnaire for nurses regarding clinical pathway for mothers with caesarean section, clinical pathway practice checklist, rating scale to assess the level of satisfaction of mothers with caesarean section and maternal outcome.

Prepared knowledge questionnaires, Observational check list and clinical pathway tool was given for validation to the experts in the field of research and nursing. Based on the opinion given by the experts, tool was modified.

Reliability

Reliability is the degree of consistence or dependability with which an instrument measures an attribute (Polit 2010). The reliability of the tools was determined by using split half method and inter rater technique. Karl Pearson's 'r' was computed for finding out the reliability.

Structured knowledge questionnaire for nurses	-	0.97 (test -retest method)
Practice checklist for nurses	-	0.98 (inter rater technique)

Rating scale on satisfaction of mothers	-	0.9 (split half method)
Rating scale on maternal outcome	-	0.8 (split half method).

Pilot Study

The pilot study was conducted at Apollo Main Hospital, Chennai by selecting 5 nurses and 10 mothers with caesarean section of which, 5 mothers was assigned to the control group and 5 mothers was assigned to the experimental group. Purposive sampling technique was used. The purpose is to find out the feasibility and practicability of the study design. The structured knowledge questionnaire and clinical pathway were administered and found to be feasible, so the clinical pathway was found to be feasible.

Protection of Human Rights

- The study was conducted after the approval of Ethical committee, Apollo hospitals, Chennai.
- Obtained permission from Principal, Apollo college of nursing and Medical superintendent, Apollo first med hospitals
- Consent was obtained from all the participants before the data collection.
- Confidentiality was maintained throughout the study

Data Collection Procedure

Data collection is the precise, systematic gathering of information relevant to the research purpose**.** The researcher presented the proposal to the ethical committee of Apollo Hospitals and got ethical clearance was obtained to proceed the study. The investigator collected the data from Apollo First Med Hospital after obtaining formal permission from

concerned authorities. The observation time schedule was from 7 am – 12noon and 12.30 to 5.30pm respectively. The data collection period was from June 17th to July 17th 2011.

A group of 40 nurses were selected from A,D,E,I,H, labour ward by purposive sampling technique and obtained verbal consent for the study participants. During the shift changing time (2-3 pm) the nurses were gathered in the nurses station and collected the baseline data by using demographic variable proforma .Their pretest knowledge level was assessed by using structured knowledge questionnaire on clinical pathway for mothers with caesarean section.

The control group of 30 mothers with caesarean section were selected by purposive sampling method. On the day of their admission baseline data was collected by using demographic and obstetric variable proforma, after obtaining a consent from them. Nursing care received by mothers was assessed by using practice checklist through participatory observation method. Maternal outcome was monitored by using outcome rating scale. At the time of their discharge rating scale on level of satisfaction of nursing care was distributed and their level of satisfaction was assessed.

The clinical pathway for mothers with caesarean section was educated to same group of nurses and the doubts of nurses were cleared. The nurses were then instructed to use the clinical pathway from the time of admission of mothers with caesarean section After one week the investigator assessed the post test knowledge level of same group of nurses. 30 mothers with caesarean section surgery were selected for the experimental group. On the day of their admission, after obtaining a consent, pathway was placed in their

files and baseline data was collected by using demographic and obstetric variable proforma. Nursing care of these mothers was assessed by using practice checklist upon the nurses by participatory observation method. Maternal outcome was monitored by using outcome rating scale. At the time of their discharge rating scale on satisfaction of nursing care was distributed and their level of satisfaction was assessed.

Problems faced during data collection

- Nurses are called for doing their assigned work in between the data collection.
- Lack of time for the nurses to fill the questionnaire.

Plan for Data Analysis

Data analysis is the systemic organization and synthesis of research data and testing of research hypothesis by using the obtained data (Polit and Beck 2004). Analysis and interpretation of data were carried out with descriptive statistics like frequency distribution percentage , mean ,standard deviation were used and inferential statistics like independent and paired 't' test were used . The association between the demographic variables, obstetric variables and dependent variables will be analyzed with the help of chi-square test were used to analyze the data.

Summary

This chapter dealt with the research approach, research design, setting, population, and sample, sampling technique, sampling criteria, selection and development of study instruments, validity and reliability of the instruments, pilot study, data collection procedure and plan for data analysis.

Chapter IV

Analysis and Interpretation

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter includes both descriptive and inferential statistics. Statistics is a field of study concerned with techniques or methods of data collection, classification, summarizing, interpretation, drawing, inferences, testing of hypothesis, making recommendations, etc.(Mahajan,2010).

The data were transferred to the master coding sheet and analyzed using descriptive statistics in the pilot study.

Organization of findings

- Frequency and percentage distribution of demographic variables of nurses in pre and post test .
- Frequency and percentage distribution of demographic variable in control and experimental group of mothers with caesarean section.
- Frequency and percentage distribution of obstetrical variables in control and experimental group of mothers with caesarean section.
- Frequency and percentage distribution of pre and post test knowledge of nurses regarding clinical pathway for mothers with caesarean section.
- Frequency and percentage distribution of practice of nurses in control and experimental group of mothers with caesarean section.
- Frequency and percentage distribution of level of satisfaction in control and experimental group of mothers with caesarean section

- Frequency and percentage distribution of maternal outcome in control and experimental group of mothers with caesarean section.
- Comparison of mean and standard deviation of pre and post test knowledge of nurses regarding clinical pathway for mothers with caesarean section.
- Comparison of mean and standard deviation of pre and post test knowledge of nurses in relation to various aspects of clinical pathway for mothers with caesarean section.
- Comparison of mean and standard deviation of practice of nurses in control and experimental group of mothers with caesarean section.
- Comparison of mean and standard deviation of practice of nurses in various dimensions in control and experimental group of mothers with caesarean section.
- Comparison of mean and standard deviation of level of satisfaction in control and experimental group of mothers with caesarean section.
- Comparison of mean and standard deviation of level of satisfaction on nursing care in various dimensions in control and experimental group of mothers with caesarean section.
- Comparison of mean and standard deviation of maternal outcome in control and experimental group of mothers with caesarean section.
- Association between selected demographic variables and the pre and post test knowledge of nurses regarding clinical pathway of mothers with caesarean section.

- Association between selected demographic variables and the level of satisfaction in control and experimental group of mothers with caesarean section.
- Association between selected obstetrical variables and the level of satisfaction in control and experimental group of mothers with caesarean section.
- Association between selected demographic variables and maternal outcome in control and experimental group of mothers with caesarean section.
- Association between selected obstetrical variables and maternal outcome in control group of mothers with caesarean section.

Table 1

Frequency and Percentage Distribution of Demographic Variables of Nurses in Pre and Post test (Age in Years, Religion, Educational Status , Marital Status, Type of Residential Area, Years of Experience , Income Per Month ,Previous Information Acquired Regarding Clinical Pathway)

(N=40)

Demographic variables	**n**	**P**
Age (in years)		
21-25	33	82.4
26-30	6	15
>31	1	25
Religion		
Hindu	17	42.5
Christian	23	57.5
Muslim	-	-
Others	-	-
Type of residential area		
Home	13	32.4
Hostel	27	67.5
Years of experience		
0-2 years	24	60
3-5 years	14	35
6-8 years	2	5
Income per month in rupees		
< Rs . 5000	9	22.5
Rs. 5001-7000	23	57.5
Rs.7001-9000	8	20
> Rs. 9001	-	-
Previous information acquired regarding clinical pathway		
yes	16	40
No	24	60
If yes, source of information		
Books	14	35
Journals	2	5
Magazines	-	-
Colleagues	-	-

It was observed from the table 1 that majority of the nurses belongs to 21-25 years of age (82.5%) and single (82.5%) and most of them are residing in the hostel (67.5%) and were 0-2 years of experience (60%) and the distribution of income shows that most of them had Rs.5001-7000 per month, had no previous information regarding clinical pathways (60%).

Fig. 3 shows that most of the nurses belongs to Diploma in nursing (55 %) and B.Sc nursing (42.5).

Fig.4 reveals that significant of the nurses belongs to Christian (23%) and Hindus (17%).

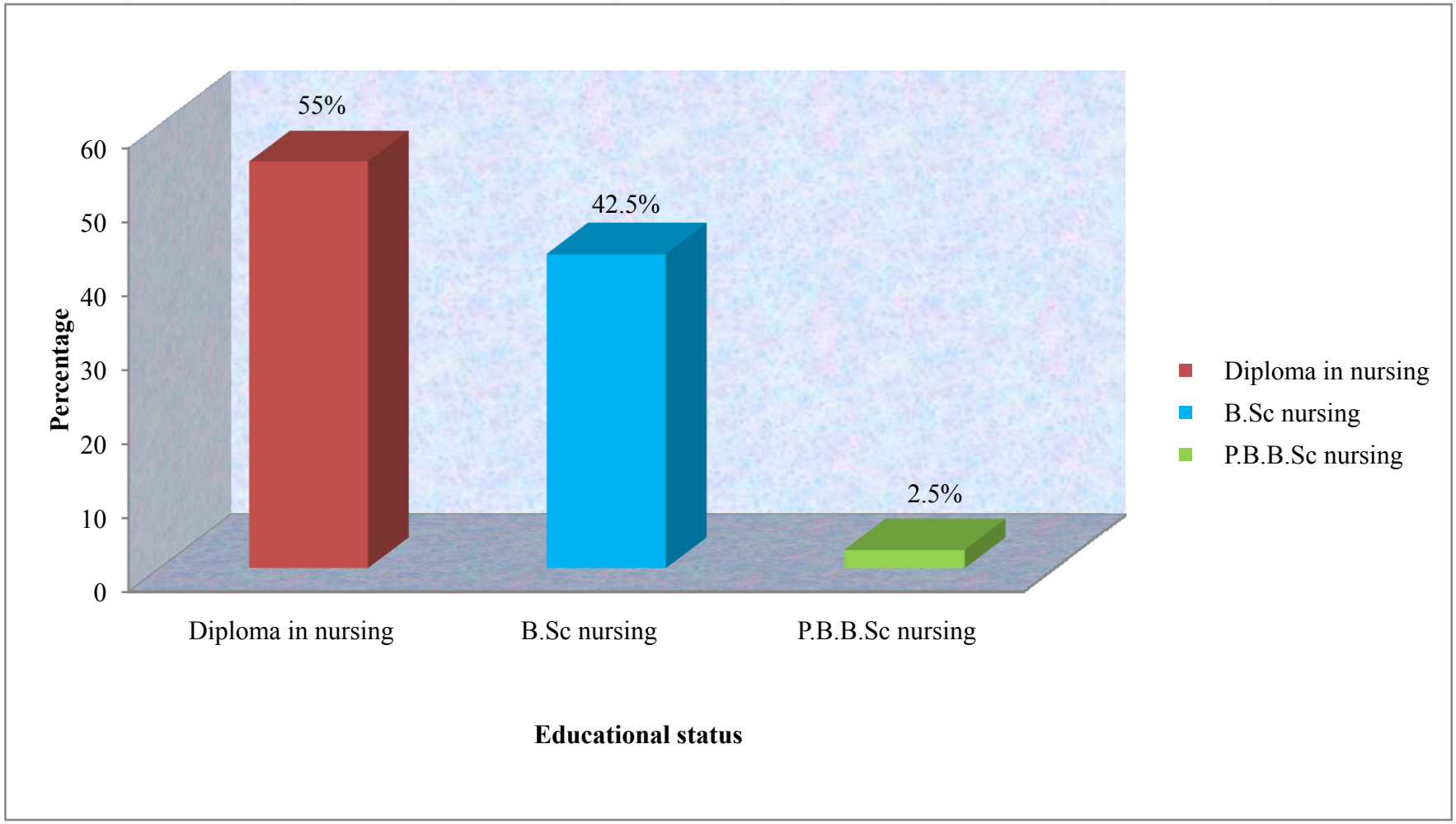

Fig. 3 Percentage Distribution of Educational Status of Nurses

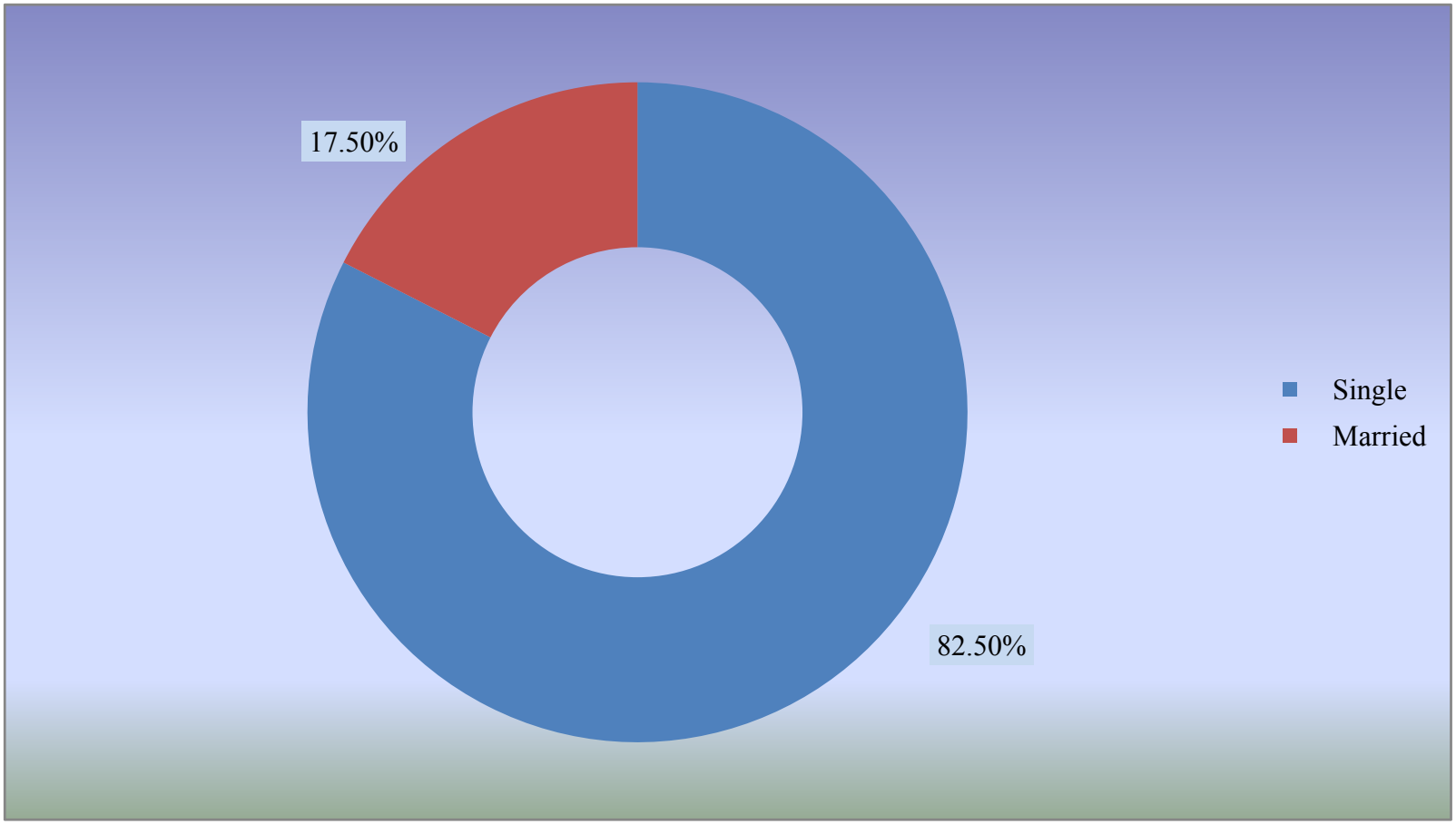

Fig.4 Percentage Distribution of Type of Marriage of Nurses

Table 2

Frequency and Percentage Distribution of Demographic Variable in Control and Experimental Group of Mothers with Caesarean Section (Age, Religion , Educational status , Occupation , age at marriage ,Type of family, Family income per month.)

Demographic variables	control group (n=30)		Experimental group (n=30)	
	n	p	n	P
Age (in years)				
20-24	6	20	3	10
25-29	9	30	13	43.3
>30	15	50	14	46.7
Religion				
Hindu	17	56.7	18	60
Christian	8	26.6	5	16.7
Muslim	5	16.7	7	23.3
Others	-	-	-	-
Occupation				
Employed	15	50	14	46.7
House wife	15	50	16	53.3
Types of family				
Nuclear	22	73.3	26	86.6
Joint	8	26.7	14	13.3
Family Income Per month in Rupees				
<30,000	-	-	-	-
30,001-50,000	-	-	2	6.7
50,001-70,000	18	60	19	63.3
>70,001	12	40	9	30

From Table 2 it can be interpreted that most of the mothers in the control group and experimental group were > 30 years of age (50%, 46.7%), and majority of them were living in nuclear family (73.3%, 83.3) with the family income between 50,001-70,000 (60%, 63.3%) per month and most of them were home makers (50%, 53.3%) respectively

Fig. 5 show that most of the mothers were graduates (53.3 % , 63.3%) and significant difference had higher secondary school (30%, 20%) in both control and experimental group respectively.

Fig. 6 interprets that most of the mothers in the control and experimental group married at the age of 24-27 years respectively.

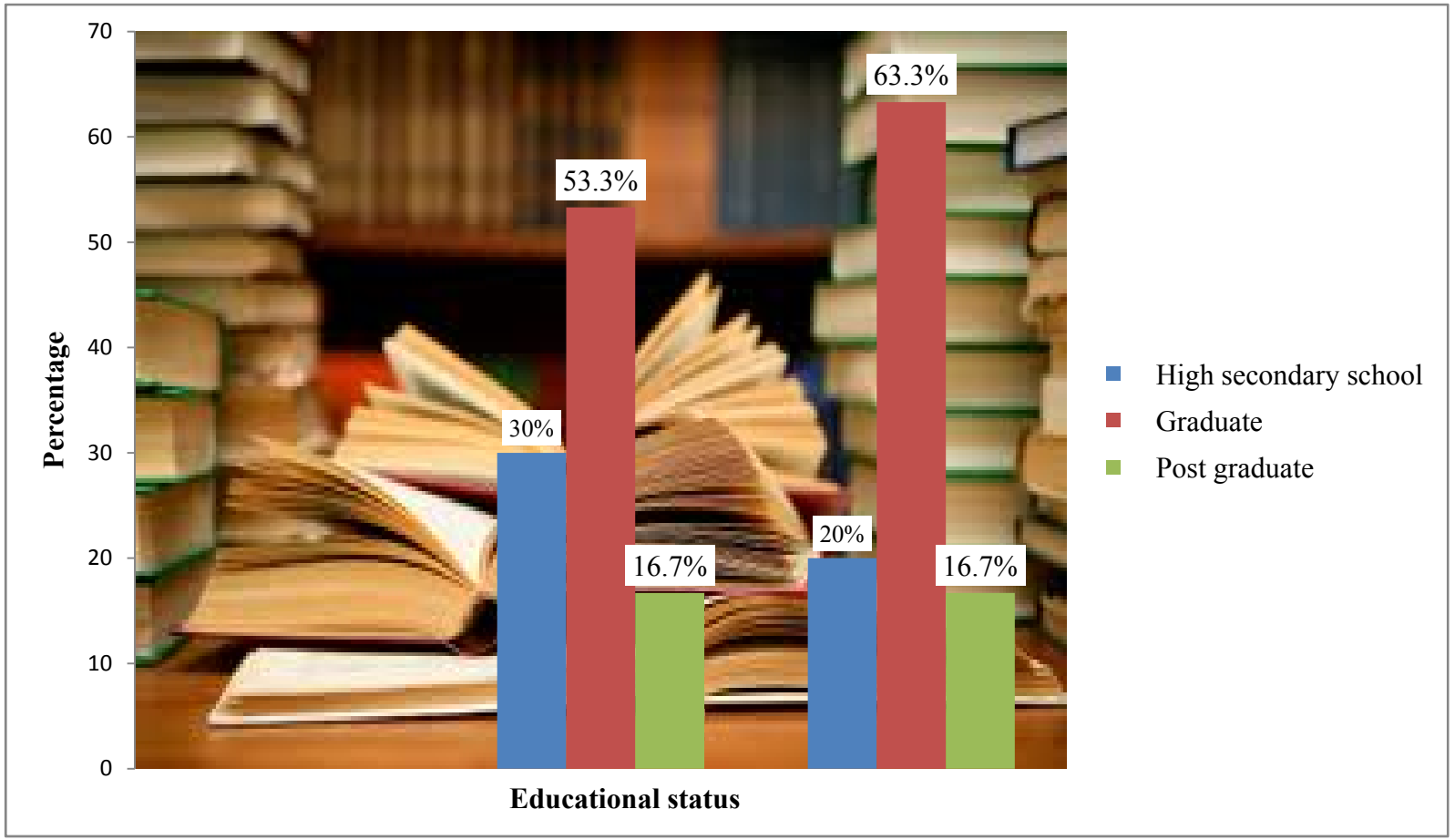

Fig .5. Percentage Distribution of Educational Status in Control and Experimental Group of Mothers with Cesarean Section.

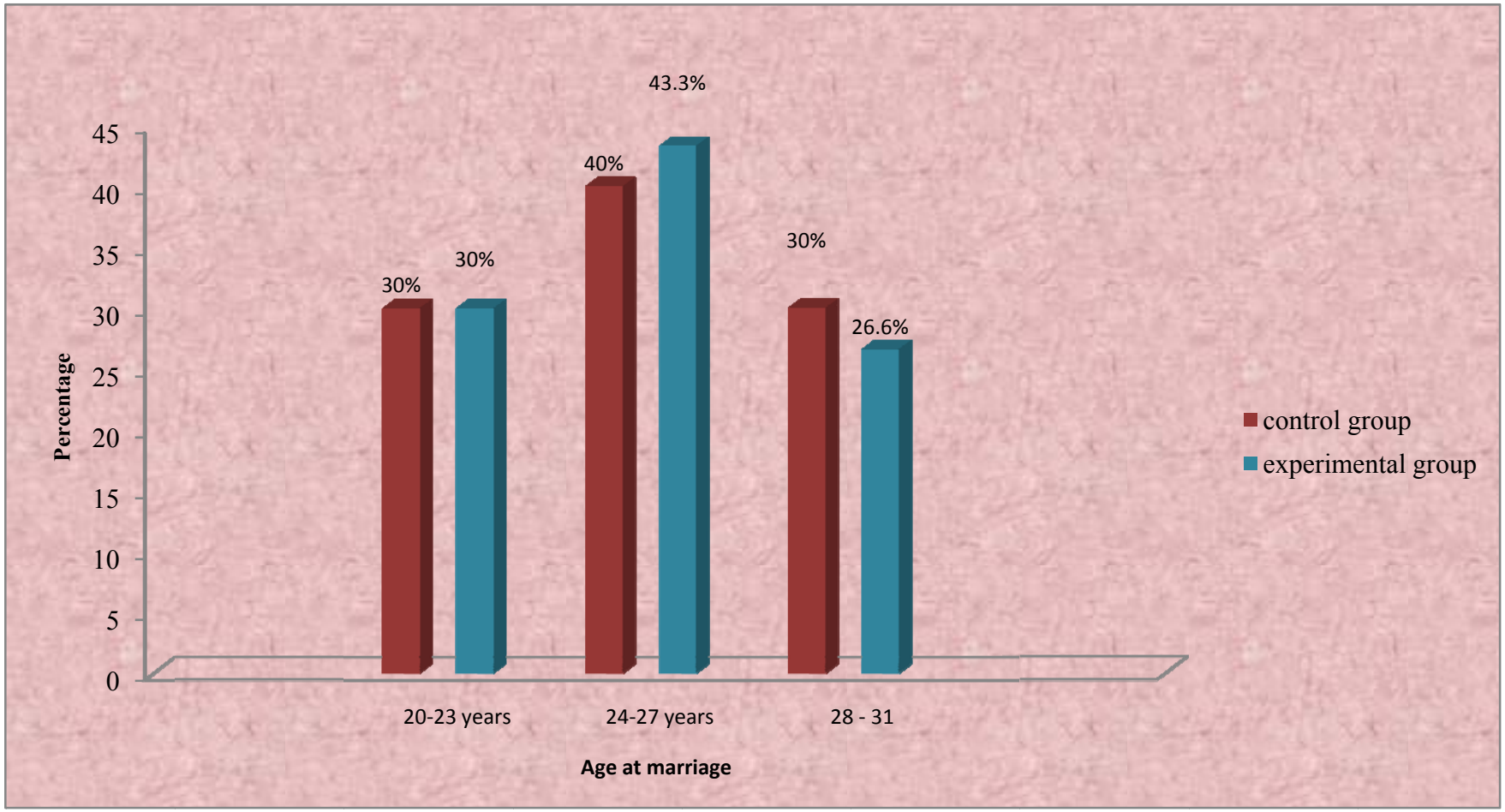

Fig .6 Percentage Distribution of Age at Marriage in Control and Experimental Group of Mothers with Cesarean Section.

Table 3

Frequency and Percentage Distribution of Obstetrical Variables in Control and Experimental Group of Mothers With Caesarean Section (Gestational age in weeks, Gravida, Type of Previous Delivery, Number of Antenatal Visits, Indication, Type of Caesarean Section, Type of Anesthesia, Co Morbidity, Complications and Length of Stay).

Obstetrical variables	Control group (n=30)		Experimental group (n=30)	
	n	P	n	P
Gestational age in weeks				
37-38	1	3.3	14	46.7
39-40	22	73.3	15	50
41-42	7	23.3	1	3.3
Type of previous delivery				
Not applicable	19	63.3	18	60
Normal delivery	1	3.3	2	6.6
Caesarean section	10	33.3	10	33.3
Instrumental delivery	-	-	-	-
Number of antenatal visit				
No visit	-	-	-	
≤ 4 times	-	-	-	
≥ 5 times	30	100	30	100
Indication for caesarean section				
Previous elective and emergency caesarean section.	9	30	11	36.6
Fetal indication	9	30	5	16.7
Maternal indication	12	40	14	46.7
Type of Anesthesia				
General	14	46.7	18	60
Spinal	16	53.5	12	40
Co morbidity				
H/o minor illness before pregnancy	-	-	3	10
H/o illness during pregnancy	6	20	10	33.3
Nil	24	80	17	56.7

Complication				
Anesthetic complication	-	-	-	-
Post partum hemorrhage	-	-	-	-
Shock	-	-	-	-
Infection	-	-	-	-
puerperal pyrexia	-	-	-	-
Nil	30	100	30	100

The data presented in table 3 depicts that most of the mothers were between 39 – 40 weeks of gestation (73.3%, 50%) , had maternal indication for caesarean section (63.3%, 46.7%), had no co morbidity (80 %, 56.7%) , and none of them developed any complication (100%) both in control and experimental group respectively.

Almost all the mothers in the control and experimental group had more than 5 times antenatal visit (100%) respectively.

Fig . 7 shows the gravid status of the mother and most of them are primigravidae (63.3%, 56.6%) both in control and experimental group respectively.

Fig . 8 reveals that most of the mothers in control group had emergency caesarean section (46.7%) whereas majority of the mothers in experimental group had elective caesarean section (76.7%).

Fig . 9 shows that majority of the mothers in control and experimental group had 5 days of stay in the hospital (86.7%, 83.3%) respectively.

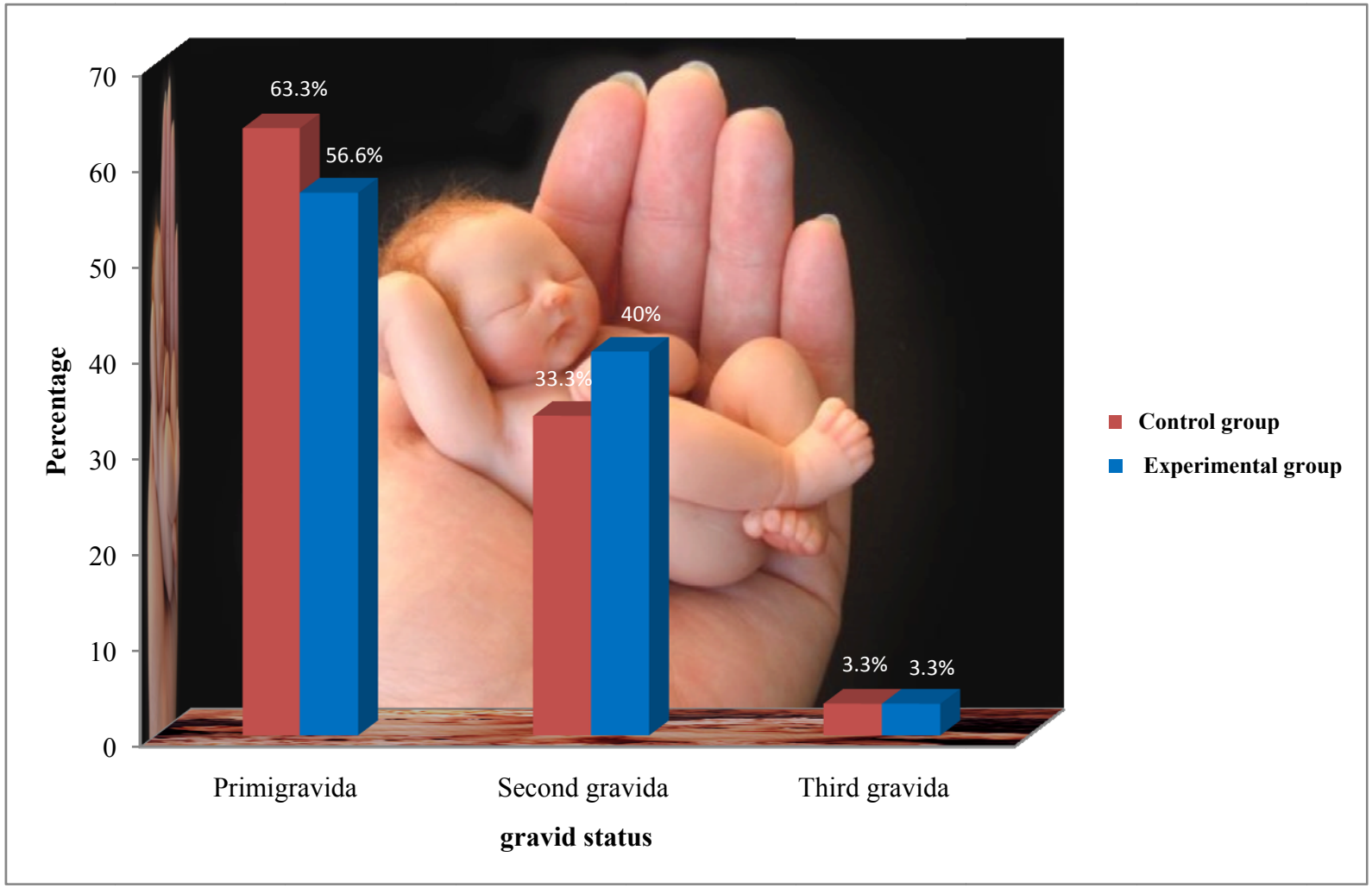

Fig 7. Percentage Distribution of Gravid Status in Control and Experimental Group of Mothers with Cesarean Section

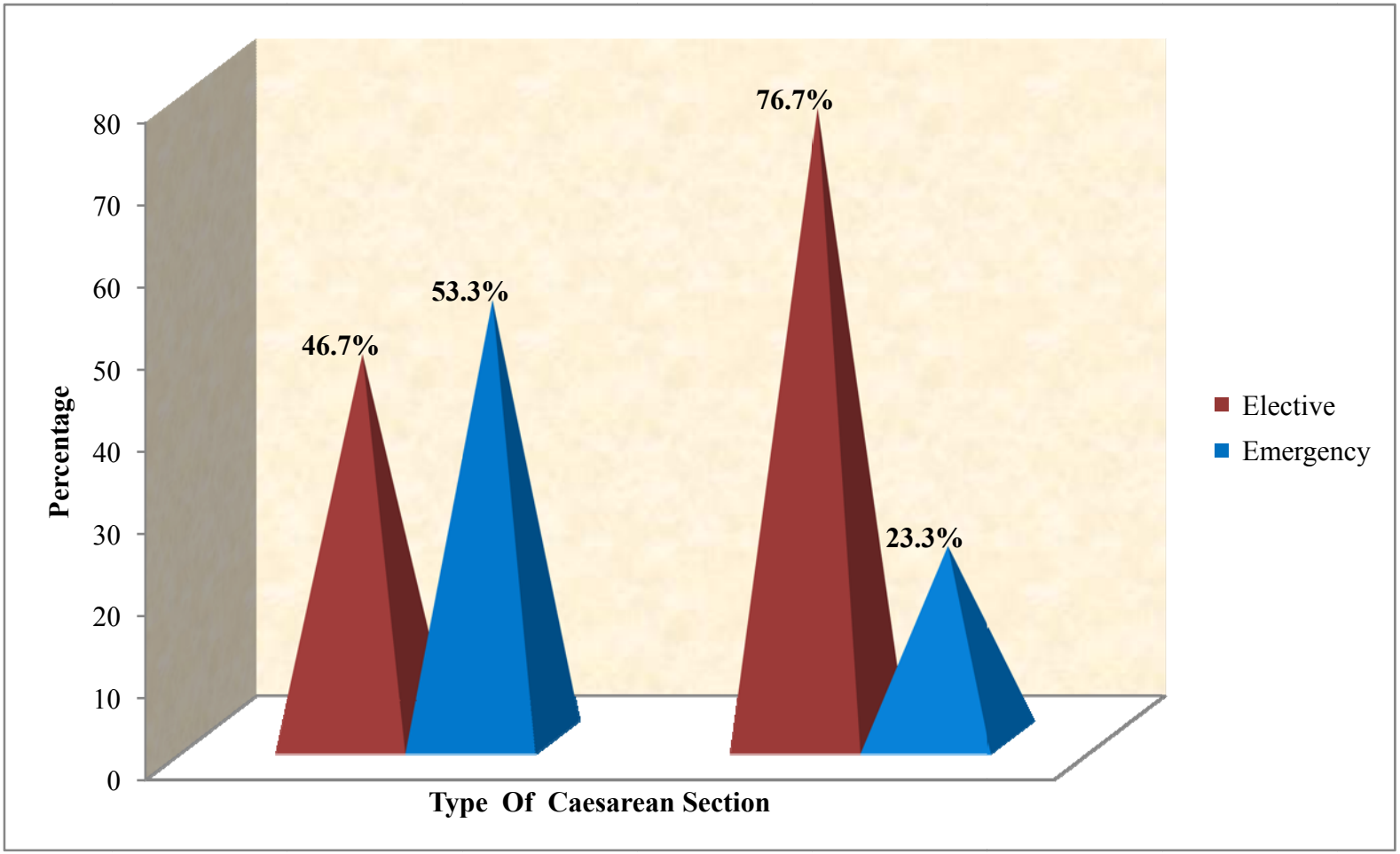

Fig .8. Percentage Distribution of Type of Caesarean Section in Control and Experimental Group of Mothers with Cesarean Section

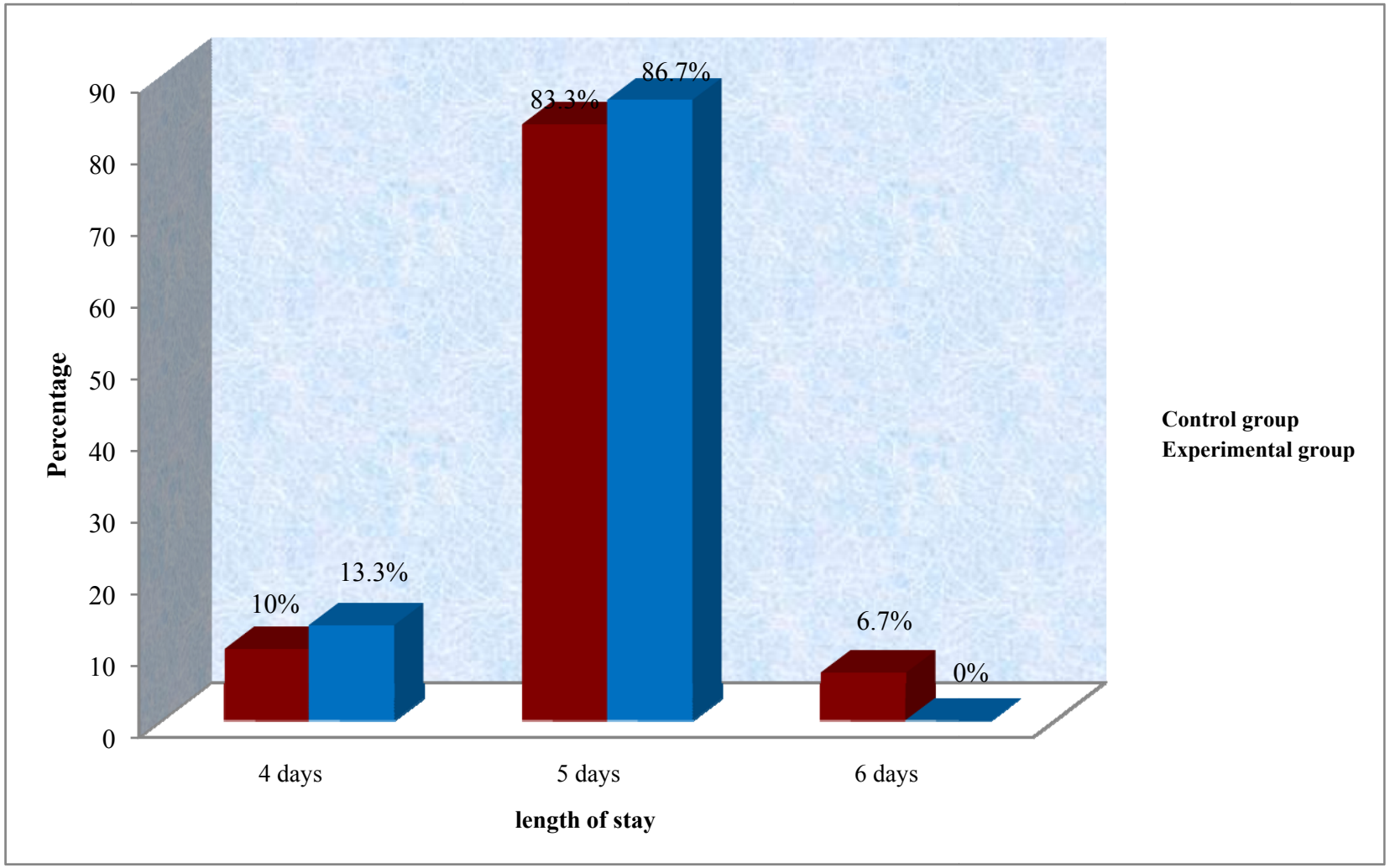

Fig .9. Percentage Distribution of Length of Stay in Control and Experimental Group of Mothers with Caesarean Section

Table 4

Frequency and Percentage Distribution of Pre and Post Test Knowledge of nurses regarding Clinical Pathway for Mother with Caesarean Section

(N=40)

knowledge scores	Inadequate		Moderately Adequate		Adequate	
	n	**P**	**n**	**P**	**n**	**P**
Pre test	13	32.5	22	55	5	12.5
Post test	-	-	9	22.5	31	77.5

Most of the nurses had moderately adequate knowledge in the pre test (55%) where as in the post test most of them had gained adequate knowledge (77.5%) as depicted in table 4

Table 5

Frequency and Percentage Distribution of Practice of Nurses in Control and Experimental Group of Mothers with Caesarean Section

Practice	Day 1		Day 2		Day 3		Day 4		Day 5	
	n	p	n	p	n	p	n	P	n	P
Control group(n=30)										
Compliant	1	3.3	30	100	-	-	-	-	12	40
Partially compliant	29	96.6	-	-	30	100	30	100	18	60
Non compliant	-	-	-	-	-	-	-	-	-	-
Experimental group(n=30)										
Compliant	30	100	30	100	30	100	30	100	30	100
Partially compliant	-	-	-	-	-	-	-	-	-	-
Non compliant	-	-	-	-	-	-	-	-	-	-

Table 5 reveals that majority of the nursing practice in control group in day 1 is partially compliant (96.6%), day 2 is compliant (100%),day 3 is partially compliant (100%), day 4 is partially compliant (100%), day 5 is partially compliant (60%) whereas all the practice of nurses in experimental group were compliant (100%) in all 5 days.

Table 6

Frequency and Percentage Distribution of Level of Satisfaction in Control and Experimental Group of Mothers with Caesarean Section.

Level of Satisfaction	Control group (n=30)		Experimental group (n=30)	
	n	P	n	P
Low	-	-	-	-
Moderate	13	43.3	3	10
High	17	56	27	90

Table 6 shows that most of the mothers were highly satisfied (56%) in control group and majority of the mothers were highly satisfied (90%) in the experimental group and none of them reported low satisfaction.

Table 7

Frequency and Percentage Distribution of Maternal Outcome in Control and Experimental Group of Mothers with Caesarean Section.

Maternal outcome	Control group (n=30)		Experimental group (n=30)	
	n	P	n	P
Positive outcome	30	30	30	30
Moderately positive	-	-	-	-
Negative outcome	-	-	-	-

It can be noted from Table 7 that majority of the mothers in the control group and experimental group develop no complications and had positive outcome (100%) respectively.

Table 8

Comparison of Mean and Standard Deviation of Pre and Post Test Knowledge of Nurses Regarding Clinical Pathway for Mothers with Caesarean Section

(N=40)

Knowledge	Mean	SD	't'
Pre test	14.1	3.32	
Post test	20.5	2.58	13***

***P< 0.001

It can be inferred from the table 8 that mean and standard deviation of level of knowledge of nurses were low in pre test (M=14..1, SD=3.32) when compared to post test M =20.6 , SD =2.58) . There was an improvement in the level of knowledge (M = 6.4 , SD = 0.74). The difference was statically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the knowledge of nurses on mothers with caesarean section. Hence the null hypothesis $H_0$1 was rejected.

Table 9

Comparison of Mean and Standard Deviation of Pre and Post Test Level of Knowledge of Nurses in Relation to Various Aspects of Clinical Pathway for Mothers with Caesarean Section.

(N=40)

Knowledge dimension	Pre test		Post test		't' value
	Mean	SD	Mean	SD	
1. Clinical pathway	1.8	0.97	3.9	0.93	13.8***
2. Nutrition, elimination, hygiene	3.5	1.09	4.5	0.74	4.76***
3. Mobility, position, rest and sleep, Comfort, safety	2.6	1.21	3.8	0.87	6.05***
4. Vital signs, pain assessment, wound dressing	3.5	1.1	4.3	0.71	4.41***
5. Breast feeding , &new born care health education	2.5	1.24	4	0.87	4.75***

***P< 0.001

Table 9 depicts that the mean and standard deviation of knowledge on various aspects was low in pre test when compared to post test . This show that the knowledge of nurses has improved after implementation of clinical pathway(M= 1.8, SD=0.97; M=3.9, SD=0.93), environment, nutrition, elimination and hygiene (M=3.5, SD=1.09; M=4.5, SD=0.74), Mobility, Position, Rest and Sleep, comfort, (M=2.6, SD= 1.21 ; M=3.8,SD = 0.87) and in breast feeding, health education and new born care (M=2.5, SD=1.24; M=4, SD=0.87). The difference was statistically

proved at 99.9% level of confidence and it was attributed that the effectiveness of clinical pathway upon the knowledge of nurses in various aspects of care. Hence the null hypothesis $H_0 1$ was rejected.

Table 10

Comparison of Mean and Standard Deviation of Practice of Nurses in Control and Experimental Group of Mothers With Caesarean Section .

Practice	Control group (n=30)		Experimental group (n=30)		't' value
	Mean	SD	Mean	SD	
Day1	85.2	3.59	113.5	1.76	3.93***
Day2	93.7	2.66	113	2.32	30.6***
Day3	57.8	5.08	75.6	3.98	16.1***
Day4	49.5	3.83	71.6	2.82	25.6***
Day5	42.8	3.89	55.7	0.43	18***

*** $p < 0.001$

It can be incurred from the table 10 that mean and standard deviation of the practice of nurses in control group were less compared to the experimental group of mothers with caesarean section. This shows the practice of the nurses in control and experimental group at day 1(M=85.2, SD=3.59; M = 113.5, SD =1.76), day 2(M=93.7, SD=2.66; M = 113, SD = 2.32), day 3 (M=57.8, SD=5.08; M =75.6, SD = 3.98), day 4 : (M= 49.5 , SD= 3.83; M =71.6, SD= 2.82), day 5 (M = 42.5, SD = 3.89; M= 55.7, SD=0.43). The difference was statistically proved at $p < 0.001$ level of confidence and it was attributed that the practice of nurses in clinical pathway for mothers with caesarean section was effective in experimental group. Hence the null hypothesis $H_0 1$ was rejected

Table 11

Comparison of Mean and Standard Deviation of Practice of Nurses in Various Dimensions in Control and Experimental Group of Mothers with Caesarean Section

Practice	Control group (n= 30)		Experimental group (n =30)		
	Mean	SD	Mean	SD	't' value
Assessment	72.7	3.3	78.6	0.96	9.35***
Breathing	8.8	1.14	12.3	0.7	14.5***
Nutrition	24.1	1.32	27.5	0.5	13.6***
Elimination	23.3	1.14	31.9	0.25	40.9***
Mobility	8.1	0.61	9.3	0.6	8***
Rest& sleep	21	1.67	24.7	1.36	9.7***
Comfort	12.8	1	24.4	1.36	37.9***
Hygiene	22.9	1.02	26.2	0.48	16.3***
Wound care	23.1	0.96	27.1	0.9	16.8***
Safety	11.8	0.73	26.1	2.29	33.2***
Medications	12	0.5	15.2	0.61	22.5***
Communication	25.5	0.95	33.9	1.14	31.1***
Spiritual	0.83	0.37	7.73	0.5	62.7***
Activity	25.7	0.68	33.3	0.73	42.6***
Psychological aspects	13.6	0.87	17	0	21.5***
Breast feeding	11.9	2	22.9	0.74	29.7***
Health education	8.9	0.92	17.4	0.75	39.7***

***P< 0.001

Table 11 that mean and standard deviation of practice in various dimension is lower in control group compared to the experimental group. The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the practice of nurses for mothers with caesarean section. Hence the null hypothesis Ho_1 was rejected.

Table 12

Comparison of Mean and Standard Deviation of Level of Satisfaction in Control and Experimental Group of Mothers with Caesarean Section

Level of satisfaction	Mean	SD	't' value
Control group (n=30)	62.9	5.01	
Experimental group (n=30)	69.9	5.99	4.92***

***P< 0.001

Table 12 that mean and standard deviation of level of satisfaction of mothers with caesarean section in the control group (M=62.9, SD= 5.01) is low when compared to the experimental group (M= 69.9, SD=5.99). The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the level of satisfaction of mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

Table 13

Comparison of Mean and Standard Deviation of Level of Satisfaction on Nursing care in Various Dimensions in Control and Experimental Group of Mothers with Caesarean Section

Level of satisfaction	Control group (n= 30)		Experimental group (n =30)		
	Mean	SD	Mean	SD	't' value
General nursing care	16.1	1.73	17.8	1.4	4.47***
Nutrition , elimination, hygiene	15.4	1.81	17.3	1.41	4.5***
Mobility, position, activity	15.7	1.67	17.2	1.62	3.57***
Spiritual, Psychological, health education	15.0	2.15	17.5	1.66	5.1***

***P< 0.001

It could be interpreted form the table 13 that the mean and standard deviation of level of satisfaction is low in the control group when compared to the experimental group in various dimensions. The difference was found to be statistically significant at P< 0.001 level of confidence and the level of satisfaction was improved. This shows that effectiveness of clinical pathway for mothers with caesarean section. Hence the null hypothesis $H0_2$ was rejected.

Table 14

Comparison of Mean and Standard Deviation of Maternal Outcome in Control and Experimental Group of Mothers with Caesarean Section.

Maternal outcome	Mean	SD	't'
Control group (n=30)	10.6	0.59	
Experimental group (n=30)	6.8	0.46	29.2***

***P< 0.001

The mean and standard deviation was depicted in the table 14 about the maternal outcome of mothers with caesarean section in the control group (M=10.6, SD=0.59) is high when compared to experimental group (M=6.8, SD=0.46) . The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the maternal outcome of the mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

Table 15

Association between Selected Demographic Variables and the Pre and Post Test Knowledge of Nurses Regarding Clinical Pathway of Mothers with Caesarean Section.

(N=40)

Demographic variables	Pre test				Post test		
	Inadequate	Moderately adequate	Adequate	$\chi 2$	Moderately adequate	Adequate	$\chi 2$
	n	n	n		n	n	
Age in years							
21-24	11	17	5		6	27	
25-26	2	4	-	2.69	3	3	3.2
>27	0	2	-	(df=4)	-	1	(df= 2)
Religion							
Hindu	5	10	2		3	14	0.12
Christian	8	12	3	0.16	6	17	
Muslim	-	-	-	(df=2)	-	-	(df= 1)
Education							
Diploma in nursing	9	11	1		7	15	
B. Sc . nursing	4	10	4	9.1	2	15	2.5
P.B.B.Sc	-	1	-	(df=2)	-	1	(df= 2)
Type of residential							
Home	5	6	2	11.5	4	9	0.7
Hostel	8	16	3	(df=2)	5	22	(df= 1)
Year of experience							
0-2	9	11	4		5	19	
3-5	4	9	1	3.06	4	10	1.9
6-8	-	2	-	(df=4)	-	2	(df= 2)
Marital status							
Single	11	17	5	1.62	7	26	0.28
Married	2	5	-	(df=2)	2	5	(df= 1)

Income per month in rupees							
< Rs . 5000	9	11	4		3	6	1.01
Rs. 5001-7000	4	9	1	2.93	4	19	(df= 2)
Rs.7001-9000	-	2	-	(df=2)	2	6	
> Rs. 9001	-	-	-				

The table 15 shows there is no association between the age, religion, educational qualification , type of residence, years of experience, marital status, income per month with the level of knowledge for the nurses in the pre- test and post test. It has proven that there is no association between the selected demographic variables and the level of knowledge. Hence the null hypothesis Ho_3 was retained.

Table 16

Association of Selected Demographic Variables and the Level of Satisfaction in Control and Experimental Group of Mothers with Caesarean Section

Demographic variables	Level of satisfaction					
	Control (n=30)			Experimental group (n=30)		
	Moderately Satisfied n	Highly Satisfied n	$\chi 2$	Moderately Satisfied n	Highly Satisfied n	$\chi 2$
Age (in years)						
20-24	3	3		-	3	
25-29	3	6	0.54	2	11	3.08
>30	7	8	(df= 2)	-	14	(df= 2)
Religion						
Hindu	5	12		2	16	
Christian	4	4	4.19	-	5	3.89
Muslim	4	1	(df= 2)	-	7	(df= 2)
Educational						
High secondary school	7	2		-	6	
Graduate	4	12	6.65	-	19	1.39
Post graduate	2	3	(df= 2)	2	3	(df= 2)
Occupation						
Employed	5	10	1.22	-	14	1.88
House wife	8	7	(df=1)	2	14	(df=1)
Age at marriage						
<19	-	-		-	-	
20-23 years	5	4		-	9	
24-27 years	6	7	1.66	2	11	3.19
28 - 31	2	6	(df= 2)	-	8	(df= 2)
>31	-	-		-	-	
Types of family						
Nuclear	10	12	0.6	1	25	0.71
Joint	4	14	(df=1)	1	3	(df=1)
Family Income Per month in Rupees						

<30,000	-	-		-	-	
30,001-50,000	-	-		-	2	
50,001-70,000	5	9	1.28	1	18	4.01
>70,001	9	7	(df=1)	1	8	(df= 2)

The data presented in table 16 it can be revealed that there is no association between age, religion, educational qualification, occupation, age at marriage, type of family and family income with the level of satisfaction in the control group and experimental group of mothers with caesarean section. Hence null hypothesis Ho_4 was retained

Table 17

Association of Selected Obstetric Variables and the Level of Satisfaction in Control and Experimental Group of Mothers with Caesarean Section

Obstetric variables	Control group (n=30)			Experimental group (n=30)		
	Moderately Satisfied	Highly Satisfied		Moderately Satisfied	Highly Satisfied	
	n	n	$\chi 2$	n	n	$\chi 2$
Gestational age in wks						
37-38	-	1		-	14	
39-40	10	12	0.93	2	13	2.12
41-42	3	4	(df = 2)	-	1	(df = 2)
Gravida						
Primi	6	13		2	15	
Second	7	3	4.8	-	2	4.47
Third	-	1	(df = 2)	-	1	(df = 2)
Fourth	-	-		-	-	
Type of previous delivery						
Not applicable	7	12		2	16	
Normal delivery	1	-	2.66	-	2	1.41
Caesarean section	5	5	(df = 2)	-	10	(df = 2)
Instrumental delivery	-			-	-	
Number of antenatal visit						
No visit	-	-		-	-	
≤ 4 times	-	-		-	-	
≥ 5 times	13	17	-	-	30	-
Indication for Caesarean section						
Previous elective and emergency caesarean section	4	5		-	11	
Fetal indication	5	4	1.03	-	5	2.45
Maternal indication	4	8	(df = 2)	2	12	(df = 2)

Type of caesarean section						
Elective	7	7	0.47	1	22	0.87
Emergency	6	10	(df = 1)	1	6	(df = 1)
Type of Anesthesia						
General	8	6	2.07	1	17	0.08
Spinal	5	11	(df = 1)	1	11	(df = 1)
Co morbidity						
H/o minor illness before	-	-		-	3	
H/o illness during pregnancy	1	5	1.74	2	8	5.03
Nil	12	12	(df = 2)	-	17	(df = 2)
Complication						
Anesthetic complication	-	-		-	-	
Post partum hemorrhage	-	-		-	-	
Shock	-	-		-	-	
Infection	-	-		-	-	
Puerperal pyrexia	-	-		-	-	
Nil	13	17	-	-	30	-
Length of stay						
4 days	3	-		-	4	
5 days	10	15	6	2	24	0.27
6 days	2	-	(df = 2)	-	-	(df = 2)

It can be inferred from the table 17 that there is no association between gestational weeks in weeks, type of previous delivery, no of antenatal visits, indication and type of caesarean section in the control and experimental group of mothers with caesarean section and their level of satisfaction. Hence null hypothesis Ho_5 was retained.

Table 18

Association between Selected Demographic Variables and Maternal Outcome in Control and Experimental Group of Mothers with Caesarean Section.

Demographic Variables	Control Group (n =30)		Experimental Group (n = 30)	
	Positive outcome n	χ^2	Positive outcome n	χ^2
Age in years				
20-24	6		3	
25-29	9	-	13	-
>30	15		14	
Religion				
Hindu	17		18	
Christian	8	-	5	-
Muslim	5		7	
Educational				
High secondary school	9		6	
Graduate	16	-	19	-
Post graduate	5		5	
Occupation				
Employed	15	-	14	-
House wife	15		16	
Age at marriage				
20-23	9	-	9	-
24-27	12		13	
28 - 31	9		8	
Types of family				
Nuclear	22	-	26	-
Joint	8		4	
Family Income Per month in Rupees				
<30,000	-		-	
30,001-50,000	-		2	
50,001-70,000	18	-	19	-
>70,001	12		9	

Table 18 reveals that there is no association between age, religion, education, occupation and age at marriage with the maternal outcome in the control and experimental group of mothers with caesarean section. Hence null hypothesis Ho_4 was retained. No statistics could be applied to find the association between selected demographic variables and the maternal outcome.

Table 19

Association of Selected Obstetrical Variables and Maternal Outcome in Control and Experimental Group of Mothers with Caesarean Section

Obstetrical variables	Control group (n = 30) Positive outcome			Experimental group (n = 30) Positive outcome		
	n	df	$\chi 2$	n	df	$\chi 2$
Gestational age in wks						
37-38	1			14		
39-40	22	-	-	15	-	-
41-42	7			1		
Gravida						
Primi	19			17		
Second	10	-	-	12	-	-
Third	1			1		
Fourth	-			-		
Type of previous delivery						
Not applicable	19			18		
Normal delivery	1	-	-	2	-	-
Caesarean section	10			10		
Instrumental delivery	-			-		
Number of antenatal visit						
No visit	-			-		
≤ 4 times	-			-		
≥ 5 times	30	-	-	30	-	-
Indication for Caesarean section	-			-		
Previous elective and emergency caesarean section	9			11		
Fetal indication	9	-	-	5	-	-
Maternal indication	12			14		
Type of caesarean section						
Elective	14			23		
Emergency	16	-	-	7	-	-

Type of Anesthesia						
General	14	-	-	18	-	-
Spinal	16			12		
Co morbidity						
H/o minor illness before	-			3		
H/o illness during pregnancy	6	-	-	10	-	-
Nil	24			17		
Complication						
Anesthetic complication	-			-		
Post partum hemorrhage	-			-		
Shock	-			-		
Infection	-	-	-	-	-	-
Puerperal pyrexia	-			-		
Nil	30			30		
Length of stay						
4 days	3			4		
5 days	25	-	-	26	-	-
6 days	2			-		

It can be inferred from the table 19 that there is no association between gestational weeks in weeks, type of previous delivery, no of antenatal visits, indication and type of caesarean section in the control and experimental group of mothers with caesarean section and their maternal outcome. Hence null hypothesis Ho_5 was retained .No statistics could be applied to find the association between selected obstetrical variables and the maternal outcome.

Summary

This chapter dealt with the analysis and the interpretation of the data collected by the researcher. From the analysis it can be inferred that the knowledge and practice were high in the experimental group than the control group. Thus it shows the effectiveness of clinical pathway upon the knowledge and practice of nurses and there is no association between the demographic and obstetrical variable of mother with caesarean section with their level of satisfaction and maternal outcome.

Chapter V

Discussion

CHAPTER V

DISCUSSION

STATEMENT OF THE PROBLEM

A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Mothers with Caesarean Section upon the Knowledge and Practice of Nurses and Maternal Outcome at Apollo First Med Hospitals, Chennai.

Objectives of the Study

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section.
2. To evaluate the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses.
3. To assess the maternal outcome of mothers with caesarean section in control and experimental group regarding clinical pathway for mothers with caesarean section.
4. To evaluate the effectiveness of clinical pathway for mothers with caesarean section upon the maternal outcome in control and experimental group of mothers with caesarean section.
5. To determine the level of satisfaction upon the nursing care for mothers with caesarean section in the control and experimental group of mothers with caesarean section.
6. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section.

7. To determine the association between the selected demographic variables of mothers with caesarean section in control and experimental groups with their outcome.
8. To determine the association between the selected obstetrical variables of mothers with caesarean section in control and experimental groups with their outcome

This study was carried upon 40 nurses who were taking care of mother with caesarean section and 60 mothers who were admitted for elective or emergency caesarean section in Apollo first med hospital, Chennai. The nurses knowledge was pre-tested using a structured knowledge questionnaire regarding clinical pathway for mothers with caesarean section and observe the existing nursing practice. Assessed the level of satisfaction and maternal outcome of existing nursing practice through rating scale, followed by the implementation of the clinical pathway. Their gain in knowledge was assessed by conducting post- test on the 7^{th} day after implementation of clinical pathway. Assessed the level of satisfaction and maternal outcome through rating scale after implementation.

The discussion is presented under the following heading:

- Demographic variables of nurses.
- Demographic variables and Obstetric variables in control and experimental group of mothers with caesarean section.
- Mean and standard deviation of level of knowledge in the Pre-test and post-test score of nurses and effectiveness of clinical pathway.

- Mean and standard deviation of pre- test and post- test knowledge scores of the nurses regarding various aspects of clinical pathway for mothers with caesarean section.
- Assessment of level of satisfaction and maternal outcome in control and experimental group of mothers with caesarean section.
- Association between selected demographic variables and knowledge in the pre and post- test of nurses regarding clinical pathway for mothers with caesarean section.
- Association between selected demographic variables and the level of satisfaction, maternal outcome in the control and experimental group of mothers with caesarean section.
- Association between selected obstetric variables and the level of satisfaction, maternal outcome in the control and experimental group of mothers with caesarean section.

Demographic variables of nurses

Majority of the nurses belongs to 21-25 years of age (82.5%) , single (82.5%) and most of them are residing in the hostel (67.5%). It could be interpreted that in young age nurses enter into the profession from different geographical area. The educational status of the study participants reveal that most of the nurses belongs to Diploma in nursing (55%) with 0-2 years of experience (60%) and their income was Rs.5001-7000 per month. The researcher assumed that most of the diploma nurses are in clinical practice which provide good opportunity in abroad and as the

experience of the nurses increases, their nursing care and the expected outcome can be effective.

This view was highlighted by Manglovich & Sidani. (2008). states that education, experience and skill mix represent the concentration of nursing knowledge on a unit which can be applied to improve the quality of patients care .Researcher found that most of the nurses (60%) had no previous information regarding clinical pathway. So it could be interpreted that the knowledge level is less before implementation of clinical pathway .Though the nurses provide conversional nursing care, the nurses are not aware of clinical pathways and sequence of care for mothers with caesarean section. So all the nurses need to have a extensive in-service education is necessary to keep updating the knowledge of nurses and for providing quality care.

Demographic variables in control and experimental group of mothers with caesarean section

Most of the mothers with caesarean section in control and experimental group were > 30 years of age (50%,46.7%) . It could be interpreted that as maternal age increases they are prone to develop high risk pregnancy. Projestine and Kidanto. (2009). states that the proportion of teenage mothers (12–19 years) progressively decreased over time while that of 30–34 years age group increased. Majority of them were living in nuclear family (73.3%, 83.3%) , and most of them were homemakers (50% , 53.3%) and got married at the age of 24-27 years of age (40%, 43.3%) respectively. It shows that the public is aware about the opportune time of marriage.

The family income of most of the mothers were between 50,001-70,000 (60%,63.3%) per month. It could be identified that mothers with high socioeconomic status wants painless delivery and hence the request for caesarean section also increases. This vew was highlighted by Kim, Byun & Lee .(1991). in the survey states that women of higher socioeconomic status were more likely to accept caesarean section. Since they want painless delivery the maternal request for caesarean section also increases.

Most of mothers were graduates (53.3%,63.3%) which can be recognized as a facilitating factor to obtain maximum health. This view was emphasized by a study finding of Karlsen. (2011). that lower levels of maternal education were associated with higher maternal mortality and risk. Lower educational status creates difficult situation for the mothers to know about the maternity services rendered by the government for safe delivery.

Obstetric variables in control and experimental group of mothers with caesarean section

Most of the mothers (50%, 73.3%) were in the gestational age between 39-40 weeks. The findings on gestational age can be interpreted that caesarean section in this gestational age will promote positive maternal outcome without any complications. This was emphasized by Alan and Lanson . (2009). states that caesarean section at 39 weeks reduces the risk and improve the outcome.

Almost all of them (100%, 100%) have attended more than five antenatal visits. It was remarkable to find that all the mothers had attended more than 5

antenatal visits which can be interpreted that mothers as well as the family members are well known and much aware about the importance of regular antenatal check up for the maternal and fetal well being. This view was consistent with the target of the millennium development goals (MDG) which is to achieve by 2015, the universal access to reproductive health which makes antenatal care coverage at least one visit and at least four visit for the improved service delivery.

Most of the mothers had maternal indication like cephalopelvic disproportion, non progress of labour, maternal request, short structure, malpresentations(46.7% , 63.3%). This was supported by Cheng et al. (2003). in his study he states that over 20% primipara had cephalopelvic disproportion and over 20% had non progress of labour in caesarean section group.

Mean and standard deviation of pre and post- test level of knowledge score of nurses

While assessing the existing level of knowledge through pre- test, it was noted that (55%) of the nurses did not have adequate knowledge on clinical pathway for mothers with caesarean section, whereas in the post-test most of the nurses had gained adequate knowledge (77.5%).The finding can be attributed to the effectiveness of clinical pathway that was provided after pre-test. Therefore a regular protocol should be carried out by the nurses for all mothers with caesarean section.

The mean and standard deviation of level of knowledge of nurses were low in pre test (M=14..1, SD=3.32) when compared to post test (M =20.6 , SD =2.58) . There was an improvement in the level of knowledge (M = 6.4 , SD = 0.74). This

shows that clinical pathway for mother with caesarean section increases the knowledge of nurses for rendering organized care and it clearly indicates the effectiveness of clinical pathway. This study findings was consistent with the study findings of Gabriella. (2006). to assess the level of knowledge, attitudes, and practice regarding disinfection procedures among nurses in Italian hospitals. The study suggest the need for additional information about disinfection procedures. Thus it is the responsibility of every nurse midwife to understand the importance of clinical pathway for providing effective care for mothers with caesarean section.

Mean and standard deviation of pre and post- test level of knowledge of nurses regarding various aspects of clinical pathway for mothers with caesarean section

In the present study the investigator also compared the knowledge scores with various aspects of clinical pathway for mothers with caesarean section in pre and post-test. The mean and standard deviation of knowledge on various aspects was low in pre test when compared to post test. This show that the knowledge of nurses has improved after implementation of clinical pathway(M= 1.8, SD=0.97; M=3.9, SD=0.93), environment, nutrition, elimination and hygiene (M=3.5, SD=1.09; M=4.5, SD=0.74), Mobility, Position, Rest and Sleep, comfort, (M=2.6, SD= 1.21 ; M=3.8,SD = 0.87) and in breast feeding, health education and new born care (M=2.5, SD=1.24; M=4, SD=0.87) at $p<0.001$ level of confidence and can be attributed to the effectiveness of clinical pathway.

This denotes that nurses show keen interest or place more importance to learn about clinical pathway, breast feeding, newborn care and health education.

Another reason for this may be because of their perceived interest and involvement in both maternal and child care and it can be incorporated in nursing practice.

Mean and standard deviation of practice for mothers with caesarean section

The mean and standard deviation of the practice of nurses in control group were less compared to the experimental group of mothers with caesarean section. This shows the practice of the nurses in control and experimental group at day 1 (M=85.2, SD=3.59; M = 113.5, SD =1.76), day 2 (M=93.7, SD=2.66; M = 113, SD = 2.32), day 3 (M=57.8, SD=5.08; M =75.6, SD = 3.98), day 4 (M= 49.5 , SD= 3.83; M =71.6, SD= 2.82), day 5 (M = 42.5, SD = 3.89; M= 55.7, SD=0.43) respectively. The difference was statistically proved at $p<0.001$ level of confidence and it was attributed that the practice of nurses in clinical pathway for mothers with caesarean section was effective in experimental group.

The interpretation from the findings is that mothers with caesarean section who received the intervention were satisfied with the care. The study finding was consistent with the study findings of Nikkola, Krause & Kiikkala. (1983). He states that on completion of their studies the nurses felt that their best skills and knowledge were related to the hygienic care of the patient, while their weakest area was in implementing specialized care. In their assessment made four months after graduation the nurses felt that in terms of the different areas of nursing practice their skills and knowledge had improved to some degree.

Mean and standard deviation of level of satisfaction in control and experimental group of mothers with caesarean section

The mean and standard deviation of level of satisfaction of mothers with caesarean section in the control group (M=62.9, SD= 5.01) is low when compared to the experimental group (M= 69.9, SD=5.99). The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the level of satisfaction of mothers with caesarean section. This findings indicates that clinical pathway was very effective in rendering care and improving the satisfaction of the mother and hence clinical pathway which is simple , easy , time consuming can be incorporated into nursing practice rather than conventional nursing care can be implemented rather than conventional nursing care.

Mean and standard deviation of level of satisfaction in various dimensions in control and experimental group of mothers with caesarean section

The mean and standard deviation of level of satisfaction is low in the control group when compared to the experimental group in various dimensions. The level of confidence was 99.9% and the level of satisfaction was improved . This shows that effectiveness of clinical pathway for mothers with caesarean section.

Mean and standard deviation of maternal outcome in control and experimental group of mothers with caesarean section

The mean and standard deviation of the maternal outcome of mothers with caesarean section in the control group (M=3.26, SD= 3.55) is high when compared to experimental group (M= 0.93, SD=1.43). This indicates that experimental group of patients did not developed any complications. Since maternal outcomes are

positive and mother's complications are decreased it could be stated that clinical pathway can be introduced in the day to day care as a standard tool for reducing the variance and promoting positive maternal outcome. This study was supported by similar study conducted by Wanyonyi and Karuga . (2010). states that clinical pathway acts as an objective and service evaluation tools for determining the patients outcome.

Association between selected demographic variables and the pre and post test level of knowledge of nurses

It was found by this study that there was no significant relationship with demographic variables like age, educational status, type of residential area and years of experience with the level of knowledge. This shows that knowledge and selected demographic variables are not influencing each other. Hence knowledge level to be enhanced by the midwives by practicizing clinical pathway or protocol for mothers with caesarean section.

Association between selected demographic variables and the level of satisfaction , maternal outcome of mothers with caesarean section

In the control group and experimental group there was no significant association between demographic variable and level of satisfaction. This denotes that level of satisfaction was not influenced by demographic variables. So the nurses need to play a significant role in providing sequential care by inculcating clinical pathways in practice.

It was found by this study that there was no significant association between the demographic variables and maternal outcome. This showed that the maternal outcome and selected demographic variables are not influencing each other . Hence

the complication has to be reduced and help them to attain positive maternal outcome during their hospital stay by practicizing clinical pathway for mothers with caesarean section.

Association between selected obstetric variables and the level of satisfaction , maternal outcome of mothers with caesarean section.

In the control group and experimental group there was no significant association between the obstetric variables and level satisfaction. Hence the study exhibits that there was no relationship between the obstetric variable and the level of satisfaction, so the midwife need to play a key role in providing organized care by inculcating clinical pathway in practice. In the control and experimental group there was no significant association between the obstetric variables and maternal outcome. This showed that all mothers develop positive maternal outcome, irrespective of their obstetric variables. It is the midwives responsibility to adopt the clinical pathway in day today practice for mothers with caesarean section.

Summary

This chapter has dealt about the discussion on the various aspects of study findings. This chapter comprises of demographic variables of nurses, demographic and obstetric variables of mothers with caesarean section , level of knowledge and practice of nurses in the Pre -test and post- test, and in various aspects of clinical pathway, Practice of nurses , level of satisfaction and maternal outcome in control and experimental group, association between selected demographic variables and the level of knowledge in the pre and post- test, association between selected demographic variables and the level of satisfaction, maternal outcome in the control

and experimental group of mothers with caesarean section, association between selected obstetric variables and the level of satisfaction, maternal outcome in the control and experimental group of mothers with caesarean section. The discussion has been made with various research articles and current data presented in the journals to support the study findings.

Chapter VI

Summary, Conclusion, Implications and Recommendations

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATION

Summary

A Quasi Experimental Study to Assess the Effectiveness of Clinical Pathway for Mothers with Caesarean Section upon the Knowledge and Practice of Nurses and Maternal Outcome at Apollo for Med Hospitals, Chennai.

The Objectives of the Study

1. To assess the pre and post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section.
2. To evaluate the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses.
3. To assess and compare the maternal outcome in control and experimental group regarding clinical pathway for mothers with caesarean section.
4. To determine the level of satisfaction upon the nursing care in the control and experimental group of mothers with caesarean section.
5. To determine the association between the selected demographic variables of nurses with their pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section.
6. To determine the association between the selected demographic variables with level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

7. To determine the association between the selected obstetrical variables with level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

Null Hypotheses

Ho_1 There will be no significant difference between pre & post test level of knowledge and practice of nurses regarding clinical pathway for mothers with caesarean section.

Ho_2 There will be no significant difference in the maternal outcome and level of satisfaction between the control and experimental group of mothers with caesarean section.

Ho_3 There will be no significant association between the selected demographic variables of nurses and the pre and post test level of knowledge regarding clinical pathway for mothers with caesarean section.

Ho_4 There will be no significant association between the selected demographic variables with the level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

Ho_5 There will be no significant association between the selected obstetric variables with the level of satisfaction and maternal outcome in control and experimental groups of mothers with caesarean section.

The major findings of the study

Demographic variables of nurses

Majority of the nurses belongs to 21-25 years of age (82.5%) and single (82.5%) and most of them are residing in the hostel (67.5%). The educational status

of the study participants reveal that most of the nurses belongs to Diploma in nursing (55%) and other nurses belongs to B.Sc Nursing (42.5%). Most of them were 0-2 years of experience (60%) and the distribution of income shows that most of them had Rs.5001-7000 per month. Most of them had no previous information regarding clinical pathways (60%) and about (40%) of nurses acquired previous information through books.

Demographic variables of mothers with caesarean section

Most of the mothers in the control group and experimental group were > 30 years of age (50%, 46.7%), hindu (56.7%, 60%), graduates (53.3 % , 63.3%) , married at the age of 24-27 years and home makers (50%, 53.3%) . Majority of them were living in nuclear family (73.3%, 83.3) with the family income between 50,001-70,000 (60%, 63.3%) per month respectively .

Obstetric variables of mothers with caesarean section

Most of the mothers in control group and experimental group were in gestational age of 39 – 40 weeks (73.3%, 50%), Primigravida (63.3%, 56.6%) , had previous caesarean delivery (33.3%, 33.3%) and had maternal indication for caesarean section (63.3%, 46.7%) and majority of the mothers had 5 days of stay in the hospital (86.7%, 83.3%). All the mothers have attended more than five antenatal visit (100%) and none of them developed any complication in both in control and experimental group (100%) respectively.

Level of knowledge of nurses in the Pre test and post test

Most of the nurses had moderate knowledge in the pre test (55%) where as in the post test most of them had gained adequate knowledge (77.5%) .

The mean and standard deviation of level of knowledge of nurses were low in pre test (M=14..1, SD=3.32) when compared to post test M =20.6 , SD =2.58) . There was an improvement in the level of knowledge (M = 6.4 , SD = 0.74). The difference was statically proved at 99.9% level of confidence and it shows the effectiveness of clinical pathway upon the knowledge of nurses on mothers with caesarean section. Hence the null hypothesis $H_0$1 was rejected.

The mean and standard deviation of knowledge on various aspects was low in pre test when compared to post test . This show that the knowledge of nurses has improved after implementation of clinical pathway(M= 1.8, SD=0.97; M=3.9, SD=1.8), environment, nutrition, elimination and hygiene (M=3.5, SD=1.09; M=4.5, SD=0.74), Mobility, Position, Rest and Sleep, comfort, (M=2.6, SD= 1.21 ; M=3.8,SD = 0.87) and in breast feeding, health education and new born care (M=2.5, SD=1.24; M=4, SD=0.87) .The difference was statistically proved at 99.9% level of confidence and it was attributed that the effectiveness of clinical pathway upon the knowledge of nurses in various aspects of care.

Practice of nurses in control and experimental group of mothers with caesarean section

Majority of the nursing practice in control group in day 1 is partially compliant (96.6%), day 2 is compliant (100%),day 3 is partially compliant (100%),

day 4 is partially compliant (100%), day 5 is partially compliant (60%) whereas all the practice of nurses in experimental group were compliant(100%) in all 5 day.

The mean and standard deviation of the practice of nurses in control group were less compared to the experimental group of mothers with caesarean section. This shows the practice of the nurses in control and experimental group at day 1(M=85.2, SD=3.59; M = 113.5, SD =1.76), day 2(M=93.7, SD=2.66; M = 113, SD = 2.32), day 3 (M=57.8, SD=5.08; M =75.6, SD = 3.98), day 4 : (M= 49.5 , SD= 3.83; M =71.6, SD= 2.82), day 5 (M = 42.5, SD = 3.89; M= 55.7, SD=0.43). The difference was statistically proved at 99.9% level of confidence and it was attributed that the practice of nurses in clinical pathway for mothers with caesarean section was effective in experimental group.

Level of satisfaction and maternal outcome in control and experimental group of mothers with caesarean section

Most of the mothers were highly satisfied (53%) in the control group whereas all the mothers are highly satisfied (90%) with the care. None of the mothers had complication (100%, 100%) in the control and experimental group.

The mean and standard deviation of level of satisfaction of mothers with caesarean section in the control group (M=62.9, SD= 5.01) is low when compared to the experimental group (M= 69.9, SD=5.99). The level of confidence was 99.9% and it shows that effectiveness of clinical pathway upon the level of satisfaction of mothers with caesarean section. Hence the null hypothesis $Ho_4$was rejected.

The mean and standard deviation of the maternal outcome of mothers with caesarean section in the control group (M=3.26, SD= 3.55) is high when compared to experimental group (M= 0.93, SD=1.43). The level of confidence was 97.9% and it shows that effectiveness of clinical pathway upon the maternal outcome of the mothers with caesarean section. Hence the null hypothesis Ho_2 was rejected.

Association between selected demographic variables and the level of knowledge in the pre and post- test

There is no association between the age, religion, educational qualification and years of experience in the level of knowledge for the nurses in the pre- test and post test. It has proven that there is no association between the selected demographic variables and level of knowledge. Hence the null hypothesis Ho_3 was retained with regard to age, religion, educational qualification and years of experience.

Association between selected demographic variables and the level of satisfaction, maternal outcome

There is no significant association between the selected demographic variables and the level of satisfaction, in control and experimental group of mothers with caesarean section. Hence null hypotheses Ho_4 was retained.

There is no significant association between the selected demographic variables and the maternal outcome, in control and experimental group of mothers with caesarean section. Hence null hypotheses Ho_4 was retained.

Association between selected obstetric variables and the level of satisfaction , maternal outcome

There is no significant association between the selected obstetric variables and the level of satisfaction, in control and experimental group of mothers with caesarean section. Hence null hypotheses $Ho_5$was retained.

There is no significant association between the selected obstetric variables and the maternal outcome, in control and experimental group of mothers with caesarean section. Hence null hypotheses $Ho_5$was retained.

Conclusion

This study shows that effectiveness of clinical pathway for mothers with caesarean section. The researcher found that there is increase in knowledge after post test among the nurses with practice of clinical pathway checklist. Among the mothers with caesarean section in the control and experimental group, the level of satisfaction and maternal outcome differs with slight significant differences. Finally the researcher reveals that the clinical pathway is very effective for practicing the nursing care activities .The excavator results supported that the incorporation of clinical pathway in nursing care for mother with caesarean section is the best way of providing care.

Implications

Nursing Practice:

Mothers with caesarean section experienced higher satisfaction and positive maternal outcome in the experimental group which indicates that the clinical pathway was effective in providing excellent care to mothers with caesarean section.

Nurses play a important role in assessing and providing necessary care to prevent complications, promote optimum satisfaction to the mothers. Continuing nursing education programme can be conducted on clinical pathways. Nurses should have the awareness about the continuity of care of caesarean mothers from the time of admission till discharge.

Nursing Education:

With the new trend in the health care reforms the nursing education must focus on protocol or clinical pathway. The nursing students should be taught about the importance of clinical pathway for providing effective care. The nursing students should be taught about the care from the time of admission till the discharge. This helps the students to provide nursing care effectively. The research findings helps as a support for further pathways and acts as a evidence of best practice and hence the students should be informed about the research findings. In response to this a collaborative nursing care plan, the integration of the clinical pathway with the traditional nursing care plan, and its application in teaching was introduced.

Nursing Administration:

Clinical Pathways are structured, multidisplinary plans of care designed to support

the implementation of clinical guidelines and protocols. They are designed to support clinical management, clinical and non-clinical resource management, clinical audit and also financial management. They provide detailed guidance for each stage in the management of a patient (treatments, interventions.) with a specific condition over a given time period, and include progress and outcomes details.

Clinical Pathways aim to improve, in particular, the continuity and co-ordination of care across different disciplines and sectors.

Nursing Research:

Clinical pathway acts as a audit tool to identify the characteristics of care well organized processes and the outcome. The different research has been conducted on clinical pathway with various clinical conditions to identify the effectiveness on the patients care. Development of good and effective clinical pathways for reducing the length of stay, prevention of complications and improving the maternal outcome, with cost effective, so as to generate more scientific process based on the innovative ideas for optimum care.

Nursing Theory

The conceptual framework for the present study is based on King's goal attainment model . This model addresses process of action, reaction, interaction whereby nurses and clients share information about their perception. Through perception and communication they identify the problems through which they set goals and take necessary action. This framework was chosen as it identifies the perception, judgement, action and the effect of clinical pathway on level of satisfaction and maternal outcome. This model provide framework to identify needs of the mother in an organised manner and it can be used to educate and guide the nurses.

Recommendations

- The same study can be conducted with larger number of samples of mothers with caesarean section.
- A similar study can be conducted by using prospective study and retrospective.
- The study can be conducted at different settings.
- A study can be conducted with each nursing personnel individually for their overall nursing activities.
- A comparative study between two clinical settings can also be conducted.

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Appendices

APPENDIX – I

LETTER SEEKING PERMISSION FOR CONDUCTING THE STUDY

Apollo College of Nursing

(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0151/11 15/03/2011

To

The Nursing Superintendent
Apollo First Med Hospital,
154, Poonamalle High Road,
Kilpauk,
Chennai-10.

Respected Sir / Madam,

Sub.: To request permission for research study – Reg.

Greetings! As part of the curriculum requirement our 2nd year M. Sc. (N) student Ms. Gomathi Usha.V has selected the following title for her research study.

"A Quasi experimental study to assess the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses and maternal outcome at Apollo Hospitals, Chennai".

So I kindly request your goodselves to permit her to conduct study in your esteemed institution.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL

Ok.

IS/ISO 9001:2000

Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095.
Ph. : 044 - 2653 4387 Tele fax : 044 - 2653 4923 / 044- 2653 4386

APPENDIX – II

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH TOOL

From
MS. V. Gomathi usha,
M.Sc., (Nursing) Second Year,
Apollo College of Nursing,
Chennai - 600095.

To
Forwarded Through:
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

Sub: **Requesting for opinions and suggestions of experts for establishing content validity for Research tool**.

Respected Madam,

I am a postgraduate student of the Apollo College of Nursing. I have selected the below mentioned topic for research project to be submitted to The Tamil Nadu Dr. M.G.R Medical University, Chennai as a partial fulfillment of Masters of Nursing Degree.

TITLE OF THE TOPIC:

"Effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses and maternal outcome at Apollo First Med Hospitals, Chennai."

With regards may I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing the Background, Need for the study, Statement of the problem, Objectives of the study, Demographic Variable Proforma for Nurses and Mother with Caesarean Section, Obstetric Variable Proforma for Mothers with Caesarean Section, Structured Knowledge Questionnaire for Nurses, Practice Checklist for Nurses, Clinical Pathway and Rating Scale on Level of Satisfaction and Maternal Outcome of Mothers with Caesarean Section, for your reference. I would be highly obliged and remain thankful for your great help if you could validate and send it as soon as possible.

Thanking you,

Yours sincerely,

(V.Gomathi usha)

APPENDIX – III

List of experts for content validity of the tool

1. **Prof. Dr. Latha Venkatesan, M.Sc., M.Phil., Ph.D.,**
   Principal and Professor in Nursing,
   Apollo College of Nursing,
   Chennai – 600095.

2. **Dr.Charumathi .R, M.D., D.G.O.,**
   Consultant Obstetrician & Gynaecologist,
   Apollo Hospitals,
   Chennai – 600010.

3. **Prof. Mrs. Lizy Sonia, M.Sc (N).,**
   Vice Principal,
   Apollo College of Nursing,
   Chennai – 600095.

4. **Mrs. Shobana**
   Professor,
   Apollo College of Nursing,
   Chennai – 600095.

5. **Mrs. Nesa Sathya Satchi, M.Sc (N).,**
   Reader,
   Apollo College of Nursing,
   Chennai - 600095.

6. **Mrs. Pappy Yuvarani, M.Sc (N).,**
   Lecturer,
   Apollo college of Nursing,
   Chennai – 600095.

7. **Mrs. Saraswathi, M.Sc (N).,**
   Lecturer,
   Apollo College of Nursing,
   Chennai – 600095.

APPENDIX- IV

Ethics Committee

22 June, 2011

To,
Ms. V. Gomathi Usha
1st Year M.Sc (Nursing)
Dept. of Obstetrics & Gynaecology
Apollo College of Nursing, Chennai
Tamil Nadu, India

Ref: Effectiveness of clinical pathway for mothers with caesarean section

Sub: Your letter dated 9 June, 2011 for approval of the above referenced project and its related documents

Dear Ms. V. Gomathi Usha,

Ethics committee – Apollo Hospitals has received the following document submitted by you related to the conduct of the above – referenced study.

- Project Proposal titled "Effectiveness of clinical pathway for mothers with caesarean section"
- Study Performa

The above-mentioned documents have been reviewed and approved (through expedited review) by the Chairman, Vice-Chairman and Member Secretary at a specially convened meeting of the Ethics Committee. The study is hereby approved to be conducted by you in the presented form.

The following Ethics Committee members were present at the meeting held on 22 June, 2011

Name	Profession	Position in the committee
Mr. S. S. Narayanan	Ethicist	Chairman
Dr.Radha Rajagopalan	Clinician	Vice - Chairman
Dr. Jayanthi Swaminathan	Sr.GM Clinical & Collaborative Research	Member Secretary

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you. Since your dissertation does not involve any administration of drug(s) or therapeutic composition(s) to patients and involves only interpretation of collected data, the Ethics Committee has decided to waive the requirement of informed consent.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

Yours sincerely,

Radha Rajagopalan

Date 22/6/11

Dr. Radha Rajagopalan
Ethics Committee – Vice Chairman
Apollo Hospitals, Chennai

DR. RADHA RAJAGOPALAN
Vice Chairman
Ethics Committee
Apollo Hospitals Enterprise Limited
Chennai 600 006 Tamil Nadu.

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

APPENDIX – V

RESEARCH PARTICIPANT'S CONSENT FORM

Dear Participant,

I am V. GOMATHI USHA , M.Sc. Nursing student of Apollo College of Nursing, Chennai. As a part of my study, I have selected a Research Project on "A quasi experimental study to assess the effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses and maternal outcome at Apollo First Med Hospital, Chennai".

I hereby seek your consent and co-operation to participate in the study. Please be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I ……, hereby give my consent to participate in the study.

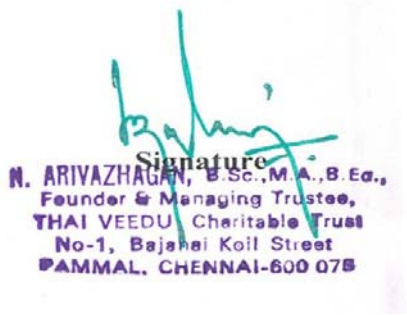
Signature of the Participant

APPENDIX – VI

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVERIT MAY CONCERN

This is to certify that the dissertation "A Quasi experimental study effectiveness of clinical pathway for mothers with caesarean section upon the knowledge and practice of nurses and maternal outcome at Apollo Hospitals, Chennai" by Ms.V .Gomathi usha , II Year M.Sc(N), Apollo College of Nursing was edited for English language appropriateness by N. Arivazhagan.



APPENDIX-VII

DEMOGRAPHIC VARIABLE PROFORMA FOR NURSES

Purpose: This Proforma is used to measure the demographic variables for nurses such as age in years, religion, educational status, marital status, type of residential area, years of experience, Income per month in rupees, the source from which information regarding clinical pathway .

Instruction: Kindly mark the appropriate answer by putting tick mark. Give your response freely and frankly .The response will be confidential .

1 . Sample no : ☐

2 . Age in years

2.1 21-25 years ☐

2.2 26-30 years ☐

2.3 > 31 years ☐

3 . Religion

3.1 Hindu ☐

3.2 Christian ☐

3.3 Muslim ☐

3.4 Others ☐

4 . Educational status

4.1 Diploma in nursing ☐

4.2 B. Sc nursing ☐

4.3 P.B.B Sc in nursing ☐

4.4 Post certificate courses ☐

5 . Marital status.

5.1 Single ☐

5.2 Married ☐

6. Type of the residential area

6.1 Home ☐

6.2 Hostel ☐

7 . Year of experience

7.1 0-2 ☐

7.2 3-5 ☐

7.3 6-8 ☐

8 . Income per month in rupees

8.1 <Rs.5000 ☐

8.2 Rs.5001-7500 ☐

8.3 Rs.7501-10,000 ☐

8.4 > Rs.10,001 ☐

9 . Previous information acquired regarding clinical pathway

9.1 Yes ☐

9.2 No ☐

10 . If yes, what was the source of information ?

10.1 Books ☐

10.2 Journal ☐

10.3 Magazines ☐

APPENDIX-VIII

DEMOGRAPHIC VARIABLE PROFORMA FOR MOTHERS WITH CAESAREAN SECTION

Purpose

This Proforma is used to measure the demographic variables for mothers such as age in years, religion, education, occupation , age at marriage in years, type of family, Family income.

Instruction

The investigator will collect data by interviewing the mother and by referring their hospital records and fill the details.

1 . Sample No : ☐

2 . Age in years

2.1 20-24 ☐

2.2 25-29 ☐

2.3 > 30 ☐

3 . Religion

3.1 Hindu ☐

3.2 Christian ☐

3.3 Muslim ☐

3.4 Others ☐

4 . Education

4.1 Illiterate ☐

4.2 Primary School ☐

4.3 Middle School ☐

4.4 High School ☐

4.5 Higher Secondary ☐

4.6 Graduate ☐

4.7 Post graduate ☐

5 . Occupation

5.1 Employed ☐

5.2 House wife ☐

6 . Age at marriage in year

6.1 < 19 ☐

6.2 20 to 23 ☐

6.3 24 to 27 ☐

6.4 28 to 31 ☐

6.5 > 31 ☐

7 . Type of the family

7.1 Nuclear ☐

7.2 Joint ☐

8 . Family Income per month in Rupees

8.1 < 30,000 ☐

8.2 30,001 -50,000 ☐

8.3 50,001- 70,000 ☐

8.4 > 70,001 ☐

APPENDIX - IX

OBSTETRIC VARIABLE PROFORMA FOR MOTHERS WITH CAESAREAN SECTION

Purpose: The proforma is used by the researcher to collect information on obstetric variables of mother such as Gestational age in weeks, gravida, parity, type of previous delivery, Indication and Type of caesarean section, type of anesthesia, co morbidity, complications during the post operative period, length of stay.

Instruction: The researcher will refer the hospital records of the mother to fill the details.

1 . Gestational age in weeks

1.1 37-38 ☐

1.2 39 -40 ☐

1.3 41-42 ☐

2 . Gravida

2.1 Primi ☐

2.2 Second ☐

2.3 Third ☐

2.4 Fourth ☐

3. Type of previous delivery

3.1 Not applicable ☐

3.2 Normal delivery ☐

3.3 Caesarean section ☐

3.4 Instrumental delivery ☐

4. Number of antenatal visit till date

4.1 No visit ☐

4.2 < 4 times ☐

4.3 > 5 times ☐

5 . Indication for caesarean section

5.1 Previous elective and emergency caesarean section ☐

5.2 Fetal indication ☐

5.3 Maternal indication ☐

6 . Type of caesarean section

6.1 Elective ☐

6.2 Emergency ☐

7. Type of Anesthesia

7.1 General ☐

7.2 Spinal. ☐

8. Co morbidity

8.1 History of minor illness before pregnancy. ☐

8.2 History of illness during pregnancy. ☐

8.3 Nil ☐

9. Complications arises during post operative period

9.1 Anesthetic complication ☐

9.2 Post partum hemorrhage ☐

9.3 Shock ☐

9.4 Infection ☐

9.5 Puerperal pyrexia ☐

9.6 Nil ☐

10. Length of stay

10.1 4 days ☐

10.2 5 days ☐

10.3 6 days ☐

BLUE PRINT ON

STRUCTURED QUESTIONNARIE TO ASSESS THE KNOWLEDGE OF NURSES REGARDING CLINICAL PATHWAY FOR MOTHERS WITH CAESAREAN SECTION

S. No.	Content	Items	Total Items	Percentage
1.	Clinical pathway	1, 2, 3, 4, 5	5	20 %
2.	Nutrition, Elimination, Hygiene.	6 , 7 , 8 , 9 , 10	5	20%
3.	Mobility and position, Rest and sleep, Comfort, Safety.	11, 12, 13,14 15	5	20 %
4.	Vital signs , Pain assessment, Wound dressing	16,17,18,19,20	5	20 %
5.	Breast feeding, Health education	21,22, 23, 24,25	5	20 %
		Total	25	100 %

APPENDIX – X

STRUCTURED QUESTIONNARIE TO ASSESS THE KNOWLEDGE OF NURSES REGARDING CLINICAL PATHWAY FOR MOTHERS WITH CAESAREAN SECTION

Purpose:

This structured questionnaire is used to assess the knowledge of nurses regarding clinical pathway for mothers with caesarean section.

Instruction

The structured questionnaire consists of multiple choice questions. Please read the questions and the answers given. Place (✓) mark against the right answer for each question. Please be frank in your responses. The information collected will be kept confidential and anonymity will be maintained.

.

1 . What is clinical pathway?

a . A pathway to provide care to the family and the patient ☐

b . A Pathway for providing organized care to prevent variance ☐

c . A Pathway for all health care professionals ☐

d . A pathway for measuring the clinical input ☐

2. What are the criteria used to measure the effectiveness of clinical pathway? ☐

a . Length of stay, patient happiness of care , involvement in the care

b . Prevention of illness , complications, patient satisfaction ☐

c . Length of stay, prevention of complication, patients satisfaction. ☐

d . Length of stay , patient satisfaction and cost effective ☐

3 . **When will you start the clinical pathway for caesarean section?**

a . From the time of admission ☐

b . Pre operatively ☐

c . Post operatively ☐

d . From the recovery period ☐

4. What are all the other name for clinical path way EXCEPT?

a . Critical pathway. ☐

b . Care pathway. ☐

c . Interdisciplinary pathway. ☐

d . Resource pathway. ☐

5 . What does the ideal clinical pathway include?

a . Reduces variances and improves resources. ☐

b . Improves outcome and resources . ☐

c . Reduces variances and improves outcome. ☐

d . Improves resources and patients care . ☐

6. How many hours will you keep the mother in nil per oral before Surgery?

a . 0-2 hours. ☐

b . 2-4 hours. ☐

c . 6-8 hours. ☐

d . 10-12 hours ☐

7 . What type of diet will you give on 2nd Post operative day as per order?

a . Clear liquids. ☐

b . Liquid diet. ☐

c . Soft solid diet. ☐

d . Normal diet. ☐

8 . Which post operative day the indwelling catheter will be removed?

a . 0 day. ☐

b. 1st day. ☐

c . 2nd day. ☐

d . 3rd day. ☐

9 . What is the amount of blood loss in the post partum hemorrhage following caesarean section?

a . When the blood loss is < 1000 ml ☐

b . When the blood loss is > 1000ml ☐

c . When the blood loss is < 500 ml ☐

d . When the blood loss is > 500 ml ☐

10 . What is the nurse's responsibility before starting oral fluids post operatively?

a . Check the vital signs ☐

b . Check the Peripheral line patency ☐

c . Check the wound dressing ☐

d . Check the bowel sounds ☐

11 . What are all the measures to prevent deep vein thrombosis in the post operative period EXCEPT?

a . Promoting early ambulation. ☐

b . Administration of medication. ☐

c . High quality elastic stockings. ☐

d . High quality electrical belt. ☐

12 . What are all the safety measures you will follow in the immediate post operative period ?

a . Side rails, attenders with the mother , use of call bell ☐

b . Side rails, safety first board and use of call bell ☐

c . Side rails , safety first board and attenders with the mother. ☐

d . Use of call bell, attenders with the mother, safety first board. ☐

13 . Which priority measures you will follow to promote comfort and sleep in the immediate post operative period?

a . Avoiding visitors ☐

b . Avoiding procedures ☐

c . Education regarding rest and sleep ☐

d . Use of comfort measures ☐

14 . What is the frequency of positioning in the '0' post operative day?

a . Every 15 minutes. ☐

b . Every 30 minutes . ☐

c . Every 2 hours. ☐

d . Every 4 hours. ☐

15. When will you mobilize the mother out of bed with assistance post operatively as per order?

a . 0 day. ☐

b . 1st day. ☐

c . 2nd day. ☐

d . 3rd day. ☐

16. How often will you check the vital signs in the first hour after surgery?

a . Every 15 minutes. ☐

b . Every 30 minutes . ☐

c . Every 2 hours. ☐

d . Every 4 hours. ☐

17. When the pain score is 8/10 then, what is your interpretation regarding pain?

a . Mild pain ☐

b . Moderate pain ☐

c . Severe pain ☐

d . Very severe pain ☐

18. How often will you check the vital signs in the 2nd post operative day?

a . Q2nd hourly. ☐

b . Q4th hourly. ☐

c . Q6th hourly**.** ☐

d . Q8th hourly ☐

19 . Which scale will you use to score the caesarean wound infection?

a . REEDA scale ☐

b . REDO scale ☐

c . READA scale ☐

d . REED scale ☐

20 . How will you manage pain on the 3rd post operative day?

a . Intravenous Antibiotics. ☐

b . Oral Analgesics. ☐

c . Epidural. ☐

d . Patient control analgesia ☐

21 . When will you administer vitamin K to the newborn?

a . With in 6 hours of birth. ☐

b . With in 12 hours of birth. ☐

c . With in 24 hours of birth ☐

d. With in 48 hours of birth. ☐

22 . What do you mean by kangaroo care?

a . Putting babies cradle close to mother's cot. ☐

b . Holding baby close towards the father. ☐

c . Putting baby close to mother's breast ☐

d . Holding baby close towards mother. ☐

23 . What do you mean by Exclusive Breast feeding?

a . Nothing orally other than breast milk upto 3 months. ☐

b . Breast milk and formula feed combined upto 6 months. ☐

c . Nothing orally other than breast milk upto 6 months. ☐

d . Breast milk and formula feed combined upto one year. ☐

24 . When you will initiate Breast feeding after the caesarean section?

a . After 1-2 hours. ☐

b . After 3-4 hours ☐

c . After 5-6 hours ☐

d . After 7-8 hours ☐

25 . What position will you provide for newborn to prevent aspiration?

a . Side lying ☐

b . Supine ☐

c . Prone ☐

d . Fowler's ☐

Score Key

1. b
2. c
3. a
4. d
5. c
6. c
7. c
8. b
9. b
10. d
11.d
12.a
13.d
14. c
15.b
16. a
17.c
18.b
19.a
20. b
21. b
22. c
23. c
24. b
25. a

Score	Percentage	Interpretation
<12.5	<50	Inadequate knowledge
12.6-18.75	51- 75	Moderate knowledge
18.76-25	>76	Adequate knowledge

APPENDIX –XI

PRACTICE CHECKLIST OF NURSES FOR MOTHERS WITH CAESAREAN SECTION

Name of the mother	:	
Age	:	
Address	:	
Ip No	:	
Consultant	:	
Date of Admission	:	
Date of Surgery	:	
Type of surgery	:	
Indication	:	
Expected length of stay	:	
Date of discharge	:	

GUIDELINES FOR CLINICAL PATHWAY:-

Compliant	:	It refers to all activity that has been completed by the nurse.
Partially compliant	:	This indicators that nurse attempt to perform but not completed.
Non compliant	:	It refers to the activity which is not attempted by the nurse.
Variances	:	It refers to the reason for the deviation of nursing activity.

PRACTICE CHECKLIST OF NURSES FOR MOTHERS WITH CAESAREAN SECTION

S.No	Henderson's activity of daily living Day1- pre operative period	C	PC	NC	Henderson's activity of daily living Day1- pre operative period	C	PC	NC
1.	**Admission Procedure:** 1.1 Orientation to the ward 1.2 Maintain interpersonal relationship 1.3 History collection a. Patient information. b. Family history. c. Past /present medical and surgical history. d. Obstetrical history. e. Marital history 1.4 Physical Examination**:-** a. Height – b. Weight – c. Vital signs Q4th hourly- d. Systemic assessment: e. Abdominal palpation:- f. Vaginal examination: (in case of emergency) 1.5 Monitor CTG. 1.6 Intimate the doctor and get order 1.7 Investigations				**3 .Nutrition: –** **Elective:-** 3.1 Provide normal diet on admission . 3.2 Keep the mother nil per oral from 10pm. **Emergency:-** 3.1 Nil per oral. **4. Elimination:-** 4.1 Assess the normal bladder and bowel pattern. 4.2 Assess for any constipation. 4.3 Monitor intake and output chart. 4.4 Bowel preparation HS and morning . 4.5 Catheterize the mother before shifting to the OT. **5. Mobility and position:-** 5.1 Assist mother in walking if needed. **6. Rest and Sleep:-** 6.1 Assess the normal sleeping pattern. 6.2 Provide comfortable position . 6.3 Educate about the importance of rest and sleep. **7 . Comfort:-** 7.1 Unit cleanliness. 7.2 Provide comfort measures. 8. **Hygiene** 8.1 Skin preparation from nipple to mid thigh 8.2 Encourage to wash the area after skin preparation .			
2.	**Breath normally/Environment:-** 2.1 Provide comfortable environment 2.2 Educate about deep breathing and coughing exercise.							

S.No	Henderson's activity of daily living Day1- pre operative period	C	PC	NC	Henderson's activity of daily living Day1- pre operative period	C	PC	NC
9 **10.** **11.** **12.**	8.3 Educate regarding Personal hygiene. **Safety** 9.1 Encourage the mother to follow safety measures 9.2 Check for any prosthesis, dentures, eye glasses, contact lenses. 9.3 Instruct the mother to remove dentures, eye glasses and contact lenses. 9.4 Hand over the valuables to the attender and get sign. **Medication** 10.1 Premedication as per physicians order. 10.2 Check the patient response to drug therapy**.** **Communication** 11.1 Maintain IPR 11.2 Explain all the procedures before doing. 11.3 Encourage mother to ventilate her feelings 11.4 Clear all the doubts of the mother **Spiritual needs** 12.1 Orient to the prayer hall. 12.2 Allow to pray without disturbance.				13. **Activity** 13.1 Teach leg exercises. 13.2 Educate importance of activities. 14 . **Pre operative preparation** 14.1 Obtain written consent. 14.2 Obtain anesthetic fitness. 14.3 Blood grouping and Rh typing and reservation of blood . 14.4 Billing clearance. 14.5 Provide gown and wear OT cap. 14.5 Verify the pre operative checklist 14.6 Monitor CTG before shifting. 14.7 Arrange the stretcher for shifting. 14.8 Shift the mother to OT accompanied by the attender with case sheet and other investigation. 14.9 Handover the mother and the Case sheet and the investigation to the OT staff. 15. **Psychosocial aspect** 15.1 Reassure the mother. 15.2 Provide psychological support. 15.3 Maintain IPR. 16. **Breast feeding** 16.1 Importance of breast feeding. 17. **Health education** 17.1 Deep breathing and coughing exercises. 17.2 Leg exercises. 17.3 Pre operative preparation.			

S.No.	Component	Henderson's activity of daily living Day2 (POD-0day)	C	PC	NC	Henderson's activity of daily living Day3 (POD-1day)	C	PC	NC
1.	**Assessment**	1.1. Check the level of conscious. 1.2. Check the patency of airway. 1.3. Check oxygen saturation. 1.4 Monitor vital signs every 15 minutes for 1-2 hours and then every 30 minutes in the 3rd hour. 1.5. Physical examination. 1.6. Pain assessment 1.7. Assess the nutritional status. 1.8 Watch the colour and amount of lochia. 1.9 Assess the intake and output. 1.10 Check for Post partum hemorrhage.				1.1. Check vital signs Q4hrly. 1.2. Physical examination. 1.3. Pain assessment. 1.4 Watch the colour and amount of lochia. 1.5 **Lochia rubra** - (red)1-4 days. **Lochia serosa**-(yellowish or pink or pale brownish), 5-9 days. **Lochia alba** - (Pale white) 10-15 days.			
2.	**Breath normally /Environment**	2.1. Check the patency of airway. 2.2. Monitor the respiratory rate. 2.3. Check oxygen saturation Encourage about deep breathing and coughing exercise.				2.1 Encourage mother to perform deep breathing and coughing exercise.			
3.	**Nutrition**	3.1 Nil per oral as per order. 3.2 Check the bowel movements and start sips of fluids 3.3 Monitor Intake and output chart. 3.4 Administer IV fluids as per order.				3.1 Stop IV fluid as per order. 3.2 Progress the diet slowly. Give clear liquid and then liquid diet. 3.3 Encourage mother to drink plenty of fluids. 3.4 Monitor Intake and output chart.			
4.	**Elimination**	4.1 Indwelling catheter in situ.				4.1 Remove catheter as per order .			

		4.2 Provide catheter care Q8th hourly. 4.3 Watch the color , quantity and characteristic of the urine. 4.4 Urine Output > 30ml / Hour. 4.5 Maintain I/o chart.				4.2 Watch the urine output and inform doctor if mother did not void or output is less than 30ml. 4.3 Watch for bowel movements.			
5.	**Mobility and position**	5.1 Strict bed rest a per order. 5.2 Positioning Q4th hourly.				5.1 Mobilize with assistance as per order.			
6.	**Rest and Sleep**	6.1 Assess the sleeping habits 6.2 Provide noise free environment 6.3 Ensure sound sleep and rest 6.4 Avoid Procedures during rest and sleep. 6.5 Provide comfort measures. 6.6 Pain management. 6.7 Administer sedations as per order.				6.1 Provide comfortable position . 6.2 Avoid Procedures during rest and sleep.			
7.	**Comfort**	7.1 Provide comfort measures. 7.2 Maintain proper position Q4hrly. 7.3 Maintain positioning chart				7.1 Provide comfort while breast feeding. 7.2 Avoid visitors. 7.3 Explain about the kangaroo care. 7.4 Mummify the baby.			
8.	**Hygiene**	8.1 Encourage mother to have stellisept bath. 8.3 Change the linen. 8.4 Unit cleanliness. 8.5 Provide breast care. 8.6 Provide perineal care Q8th hourly.				8.1. Provide sponge bath 8.2 Provide breast care before each feed. 8.3 Provide perineal care Q8th hourly. 8.4 Change the perineal pad when it is soaked.			

9.	**Wound and dressing**	9.1 Assess the dressing for the oozing. 9.2 Assess the color and amount of the ooze ,if present. 9.3 Change the dressing, if soaked.				9.1 Assess the dressing for the oozing. 9.2 Assess the color and amount of the ooze ,if present. 9.3 Change the dressing, if soaked.			
10.	**Safety**	10.1 Fix safety first board . 10.2 Put Side rails for the mother. 10.3 Keep the call bell with in the reach , if present . 10.4 Instruct the use of call bell. 10.5 Locking the cot. 10.6 Check the blood group of the new born for Rh incompartability.				10.1 Assist the mother to walk safely . 10.2 Educate about the safe handling of the baby. 10.3 Follow safety while walking.			
11.	**Medication**	11.1 As per physicians order. 11.2 Monitor the mothers response to drug therapy. 11.3 Administer Rhogan with in 72 hours for Rh negative mothers.				11.1 Administer IV Analgesics, antibiotics as per physicians order.			
12.	**Communication**	12.1 Maintain IPR 12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother.				12.1 Maintain IPR 12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother .			
13.	**Spiritual needs**	13.1 Identify and encourage spiritual habits. 13.2 Encourage the mother to pray.				13.1 Encourage the mother to pray			

14.	**Activity**	14.1 Provide bed rest as per doctors order.. 14.2 Encourage to do leg exercises in the bed. 14.3 Encourage to perform passive activity.				14.1 Encourage mother to perform activity of daily living with assistance.			
15.	**Psychosocial aspect**	15.1 Reassure the mother. 15.2 Provide psychological support 15.3 Maintain IPR				15.1 Reassure the mother. 15.2 Provide psychological support 15.3 Maintain IPR			
16.	**Breast feeding**	16.1 Initiate breast feeding with in 4-6 hours as per doctors order. Breast care before each feed. 16.2 Assist the mother in breast feeding. 16.3 Demonstrate techniques of breast feeding. 16.4 Explain about the correct attachment and detachment for breast feeding.				16.1 Explain about the demand feeding . 16.2 Educate the advantages of breast feeding. 16.3 Provide support and reassurance.			
17.	**Health education**	17.1 splinting the incision site while coughing. 17.2 Importance of positioning.				17.1 Importance of postnatal care.			
S.No	**Component**	**Henderson's activity of daily living. Day4 (POD-2nd day)**	**C**	**PC**	**NC**	**Henderson's activity of daily living. Day5 (POD-3rd day)**	**C**	**PC**	**NC**
1.	**Assessment**	1.1. Assess the general condition of the mother 1.2. Check Vital signs Q4th hourly. 1.3. Physical examination.				1.1 Check the physicians order for discharge. 1.2 Check the NICU for baby discharge. 1.3 Assess the General condition for			

		1.4 Watch the colour and amount of lochia .				mother 1.4 Check Vital signs Q4th hourly. 1.5. Physical examination. 1.6 Watch the colour and amount of lochia .			
2.	**Breath normally /Environment**	2.1 Encourage mother to perform deep breathing and coughing exercise.				2.1 Encourage mother to perform deep breathing and coughing exercise.			
3.	**Nutrition**	3.1 Soft solid diet. 3.2 Encourage mother to drink plenty of fluids.				3.1 Normal diet. 3.2 Encourage mother to drink plenty of fluids.			
4.	**Elimination**	4.1 Watch for normal bowel movement. 4.2 Watch the urine output. 4.3 Instruct mother not to strain while defecation.				4.1 Educate the mother to have regular bowel pattern.			
5.	**Mobility and position**	5.1 Mobilize independently				5.1 Mobilize independently .			
6.	**Rest and Sleep**	6.1 Provide Comfortable position . 6.2 Educate about the importance of rest and sleep.				6.1 Encourage mother to take rest in between the activities.			
7.	**Comfort**	7.1 Encourage mother to perform kangaroo care. 7.2 Encourage mother to mummify the baby. 7.3 Encourage mother to use clean clothes for the baby washed and dried under the sun.				7.1 Provide comfort while breast feeding. 7.2 Avoid visitors.			
8.	**Hygiene**	8.1 Showers with assistance.				8.1Showers independently.			

9.	**Wound and dressing**	9.19.1 Old dressing is removed. 9.2 Assess the REEDA score – Redness- Erythema- Ecchymosis – Discharge – Approximation- 9.3 Wound edges well approximated. 9.4 Watch for any oozing . 9.5 Note the color of the ooze if present. 9.6 Apply tegaderm 3591 .				9.1 Intact, clean and dry. 9.2 Suture removal after 12 days .			
10.	**Safety**	10.1 Child safety . 10.2 Educate regarding the safe use of sharp equipment in the home. 10.3 Advise not to leave the child alone.				10.1 Educate about the safety precaution in the home.			
11.	**Medication**	11.1 Administer Oral Analgesics, antibiotics as per physicians order.				11.1 Explain the discharge medications. 11.2 Encourage mother to take medications regularly.			
12.	**Communication**	12.1 Maintain IPR 12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother .				12.1 Communicate the discharge summary to the mother. 12.2 Check whether the mother is receptive .			

13.	**Spiritual needs**	13.1 Encourage the mother to pray.				13.1 Encourage the mother to pray.			
14.	**Activity**	14.1 Importance of active and passive exercise. 14.2 Encourage mother to perform activity of daily living .				14.1 Encourage mother to have regular activity in the home.			
15.	**Psychosocial aspect**	15.1 Reassure the mother. 15.2 Provide psychological support 15.3 Maintain IPR.				15.1 Give positive attitude towards child rearing.			
16.	**Breast feeding**	16.1 Explain about the exclusive breast feeding. 16.2 Nothing other than breast milk exclusively for first 6 months.				16.1 Baby friendly hospital initiative. 16.2 How to perform expressed breast feeding.			
17.	**Health education**	17.1 Prevention of infection.				17.1 Essential new born care.			

BLUE PRINT ON

RATING SCALE ON LEVEL OF SATISFACTION OF MOTHERS WITH CAESAREAN SECTION

S.No	CONTENT	ITEMS	TOTAL ITEMS	PERCENTAGE
1.	General nursing care	1, 2, 3, 4, 5	5	25%
2.	Nutrition, Elimination, Hygiene.	7 , 8 , 9 , 10	4	20%
3.	Mobility and position, Rest and sleep, Environment, Comfort, Safety.	6 ,11, 12, 13,14 15	6	30 %
4.	Communication, Spiritual needs, Psychological , Health education	16,17,18,19,20	5	25%
Total			20	100%

APPENDIX -XII

RATING SCALE TO ASSESS THE LEVEL OF SATISFACTION FOR MOTHERS WITH CAESAREAN SECTION

Purposes

The rating scale is designed to assess the level of satisfaction of the mothers with caesarean section regarding the effectiveness of the care.

Instruction

There are items given below. Kindly read the items. Responses extend from highly satisfied to dissatisfy. Describe your satisfaction regarding the care. Give your responses freely and frankly. The responses will be kept confidential.

S.No	Items	Highly Satisfied 4	Satisfied 3	Dissatisfied 2	Highly Dissatisfied 1
1.	Are you comfortable with the timely care provided?				
2.	Are you satisfied with the explanation provided before doing any procedures?				
3.	Do you feel satisfied with the pre operative care?				
4.	Are you able to feel relaxed and satisfied with the post operative care?				
5.	Whether the quality of care provided to you is satisfactory?				
6.	Do you feel comfortable with the environment provided?				

7.	Are you satisfied with the diet provided?				
8.	Whether the elimination needs met by the nurse is satisfactory?				
9.	Are you able to feel relaxed and comfortable with the movement and desirable position provided by the nurse?				
10.	Are you comfortable in the hospital clothing ?				
11.	Do you feel satisfied with the comfort measures provided?				
12.	Whether the sleeping hours are maintained any disturbances?				
13.	Are you satisfied with the timely administration of medication?				
14.	Are you satisfied with the Safety and security maintained in the hospital?				
15.	Whether the spiritual needs are met ?				
16.	Are you satisfied with the Psychological support provided?				
17.	Whether the nurses maintained good communication ?				
18.	Are you satisfied with the responses of the nurse?				
19.	Are you satisfied with the health education provided?				
20.	Are you satisfied with the Over all care provided?				

KEY:

SCORE	PERCENTAGE	INTERPRETATION
<10	<50	Low
11-15	51-75	Moderate
16-20	>76	High

APPENDIX –XIII

RATING SCALE ON MATERNAL OUTCOME FOR MOTHER WITH CAESAREAN SECTION

Purpose

This rating scale provides information of maternal outcome for mothers with caesarean section through clinical pathway.

Score 2 – Present with complications

Score 1 – Developed complications and treated

Score 0 – Not developed complications

S. No	Maternal outcome	Scores		
		2	1	0
1.	**Condition of mother**	➢ Grimace	➢ Dull	➢ Active
2.	**Contraction of the uterus**	➢ No contraction	➢ Mild contraction	➢ Good contraction
3.	**Oxygenation**	➢ Oxygen saturation less then 90 %	➢ O2 saturation >91-94% ➢ Maintaining oxygenation with O2 supply	➢ O2 saturation 95-100% ➢ Maintaining oxygenation with environmental O2
4.	**Nutrition**	➢ On IV fluids. ➢ NBM/ Liquid diet.	➢ Soft solid diet	➢ Normal diet.
5.	**Elimination**	➢ Mother is in catheter. ➢ Constipation.	➢ Urine output less than 30 ml/hour. ➢ Constipation.	➢ Normal bladder and bowel pattern.
6.	**Rest**	➢ Sleeping <4 hrs/day. ➢ Dependent on sedation for sleeping.	➢ Reduced rest and sleep. ➢ Sleeping 5-6 hours/day.	➢ Adequate rest and sleep. ➢ Sleeping 7-8 hours/ day.

7.	**Comfort**	➢ Pain score 7-10 ➢ Irritated. ➢ Feels discomfort in the bed.	➢ Pain score 3-6. ➢ Pain reduced with comfort measures	➢ Pain score 1-2. ➢ Able to cope with the pain
8.	**Regulatory functions**	➢ Unstable vital signs ➢ Temperature >100° F	➢ Slight alteration in vital signs ➢ Temperature 99-100 ° F	➢ Stable vital signs. ➢ Temperature 98.6 ° F.
9.	**Personal hygiene**	➢ Poor personal hygiene. ➢ Needs assistance in ADL. ➢ Abnormal REEDA score.	➢ Improper personal hygiene.	➢ Well groomed ➢ Maintains good personal hygiene. ➢ Normal REEDA score.
10.	**Communication**	➢ Not well communicating and responding	➢ Some times communicating and responding	➢ Well communicating and responding
11.	**Activity**	➢ Less active	➢ Lethargic activity	➢ More active
12.	**Diversion needs**	➢ Presence with psychological disturbances	➢ Mild disturbance ➢ Needs diversion activity.	➢ No need of diversion activity
13.	**Health teaching**	➢ Not breast feeding ➢ Not carrying newborn ➢ No Rooming-in	➢ Poorly breast feeding ➢ Poorly carrying of newborn ➢ Poorly Rooming- in	➢ Breast feeding is well established ➢ Safe handling of newborn ➢ Performing Rooming-in
14	**Length of stay**	➢ Extended 2 days of stay	➢ Extended 1 days of stay.	➢ Discharged on the expected days or before the expected day

APPENDIX-XIV

PLAGIARISM REPORT

a. **Plagiarism Detector - Originality Report**

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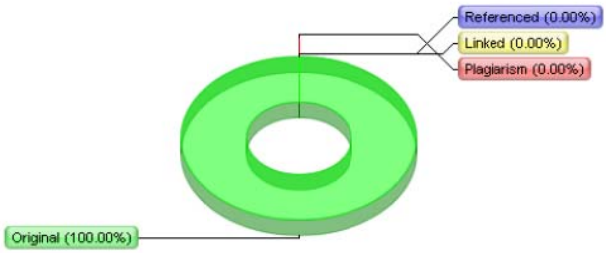

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APPENDIX - XV

Clinical pathway for mothers with caesarean section.

Introduction

Clinical pathways, also known as care pathways, critical pathways, integrated care pathways, or care maps, are one of the main tools used to manage the quality in health care concerning the standardization of care processes. It has been proven that their implementation reduces the variability in clinical practice and improves outcomes. Clinical pathways promote organized and efficient patient care based on the evidence based practice. Clinical pathways optimize outcomes in the acute care and homecare settings.

Definition

Multidisciplinary management tool based on evidence-based practice for a specific group of patients with a predictable clinical course, in which the different tasks (interventions) by the professionals involved in the patient care are defined, optimized and sequenced either by hour , day . It is an organized care to prevent variance. . Outcomes are tied to specific interventions.

Evolution

The clinical pathway concept appeared for the first time at the New England Medical Center (Boston, USA) in 1985 inspired by Karen Zander and Kathleen Bower. Clinical pathways appeared as a result of the adaptation of the documents used in industrial quality management, the Standard Operating Procedures , whose goals are:

- Improve efficiency in the use of resources.

- Finish work in a set time.

In April, 1991, VNA *FIRST*, in consultation with the Center for Case Management, Inc., South Natick, MA, developed the Home Health Care Map Tools (now called VNA FIRST Home Care Steps Protocols.) In 2005, the telehealth clinical pathway was introduced to standardize telehealth visits and telephone calls in homecare.

Synonyms

- ❖ Integrated Care Pathways.
- ❖ Multidisciplinary pathways of care.
- ❖ Pathways of Care.
- ❖ Care Maps.
- ❖ Collaborative Care Pathways.

Aim of clinical pathway:

- ❖ Clinical Pathways aim to improve, in particular, the continuity and co-ordination of care across different disciplines and sectors.
- ❖ Clinical Pathways differ from practice guidelines, protocols and algorithms as they are utilized by a multidisciplinary team and have a focus on the quality and co-ordination of care.

Characteristics

Clinical pathways (integrated care pathways) can be seen as an application of process management thinking to the improvement of patient healthcare.

1. An aim is to re-centre the focus on the patient's overall care, rather than the contribution of each specialty or caring function independently.
2. Development and use of a single all-encompassing bedside document, that will stand as an indicator of the care a patient
3. As a single unified legal record of the care the patient has received, and the progress of their condition, as the pathway has been undertaken.
4. Represent best practice for most patients most of the time, whether they have been carried out, and whether results have been as expected.

Clinical Pathways: **multidisciplinary plans of best clinical practice.**

Clinical Pathways are structured, multidisplinary plans of care designed to support the implementation of clinical guidelines and protocols. They are designed to support clinical management, clinical and non-clinical resource management, clinical audit and also financial management. They provide detailed guidance for each stage in the management of a patient (treatments, interventions etc. ....) with a specific condition over a given time period, and include progress and outcomes details.

Components

Clinical Pathways have four main components (Hill, 1994, Hill 1998):

- a timeline,
- the categories of care or activities and their interventions,
- intermediate and long term outcome criteria, and
- the variance record (to allow deviations to be documented and analyzed).

PATHWAY TEAM

- Care Coordination Manager
- Clinical Pathway Manager
- Ward Nursing Staff
- Allied Health Staff
- Ward
- Clerks

SELECTION CRITERIA:

The following signals may indicate that it may be useful to commit resources to establish and implement a clinical pathway for a particular condition:

- Prevalent pathology within the care setting.
- Pathology with a significant risk for patients
- Pathology with a high cost for the hospital
- Predictable clinical course
- Pathology well defined and that permits a homogeneous care
- Existence of recommendations of good practices or experts opinions
- Unexplained variability of care
- Possibility of obtaining professional agreement
- Multidisciplinary implementation.

Benefits

- Support the introduction of evidence-based medicine and use of clinical guidelines.
- Support clinical effectiveness, risk management and clinical audit.

- Improve multidisciplinary communication, teamwork and care planning.
- Can support continuity and co-ordination of care across different clinical disciplines and sectors.
- Provide explicit and well-defined standards for care.
- Help reduce variations in patient care (by promoting standardization).
- Help improve clinical outcomes.
- Help improve and even reduce patient documentation.
- Support training.
- Optimize the management of resources.
- Can help ensure quality of care and provide a means of continuous quality improvement.
- Support the implementation of continuous clinical audit in clinical practice .
- Support the use of guidelines in clinical practice.
- Help manage clinical risk.
- Help improve communications between different care sectors.
- Disseminate accepted standards of care.
- Provide a baseline for future initiatives.
- Not prescriptive: don't override clinical judgement.
- Expected to help reduce risk.
- Expected to help reduce costs by shortening hospital stays.

Issues - potential problems and barriers to the introduction of ICPs

- May appear to discourage personalized care
- Risk increasing litigation
- Don't respond well to unexpected changes in a patient's condition

- Suit standard conditions better than unusual or unpredictable ones
- Require commitment from staff and establishment of an adequate organizational structure
- May take time to be accepted in the workplace
- Need to ensure variance and outcomes are properly recorded, audited and acted upon.

CLINICAL PATHWAY FOR MOTHERS WITH CAESAREAN SECTION

S.No	Component	Day 1 Pre operative period	Day2 POD - 0 day	Day3 POD -1st day	Day4 POD – 2nd day	Day 5 POD -3rd day
1.	**Assessment**	**Admission:** 1.1 Orientation to the ward. 1.2 Maintain interpersonal relationship. 1.3 History collection. 1.4 Physical Examination:- g. Height – h. Weight – i. Abdominal palpation. j. Vaginal Examination. (in case of emergency). 1.5 Monitor fetal heart rate and uterine contraction using CTG. 1.6 Check vital signs Q4th hourly.	1.1. Check the level of consciousness. 1.2. Check the patency of airway. 1.3. Check oxygen saturation. 1.4. Monitor vital signs every 15 minutes for the first 2 hours and then every 30 minutes in the 3rd hour and then Q4th hourly. 1.5. Physical examination. 1.6. Pain assessment 1.7. Assess the nutritional status. 1.8. Watch the colour and amount of lochia. 1.9 Assess the intake and output. 1.10 Check for Post partum hemorrhage.	1.1. Check vital signs Q4hrly. 1.2. Physical examination. 1.3. Pain assessment. 1.4 Watch the colour and amount of lochia. 1.5 **Lochia rubra** - (red)1-4 days. **Lochia serosa**— (Yellowish or pink or pale brownish) , 5-9 days. **Lochia alba** --- (Pale white) 10-15 days.	1.1. Assess the general condition of the mother 1.2. Check Vital signs Q4hrly. 1.3. Physical examination. 1.4. Watch the colour and amount of lochia .	1.1 Check the physicians order for discharge. 1.2 Check the NICU for baby discharge. 1.3 Assess the General condition of the mother 1.4Check Vital signs Q4hrly. 1.5. Physical examination. 1.6 Watch the colour and amount of lochia.

		1.7 Intimate the doctor order.				
2.	**Breath normally /Environment**	2.1 Provide comfortable environment 2.2 Educate about deep breathing and coughing exercise	2.4. Check the patency of airway. 2.2 Monitor the respiratory rate. 2.3Check oxygen saturation 2.4 Encourage about deep breathing and coughing exercise	2.1 Encourage mother to perform deep breathing and coughing exercise.	2.1 Encourage mother to perform deep breathing and coughing exercise.	2.1 Encourage mother to perform deep breathing and coughing exercise.
3.	**Nutrition**	**Elective:-** 3.1 Provide normal diet on admission . 3.2 Keep the mother nil per oral from 10pm. **Emergency:-** 3.1 Nil per oral.	3.1 Nil per oral as per order . 3.2 Check the bowel movements and start sips of fluids 3.3 Monitor Intake and output chart. 3.4 Administer IV fluids as per order	3.1 Stop IV fluid as per order. 3.2 Progress the diet slowly. Give clear liquid and then liquid diet. 3.3 Encourage mother to drink plenty of fluids. 3.4 Monitor Intake and output chart.	3.1 Soft solid diet. 3.2 Encourage mother to drink plenty of fluids.	3.1 Normal diet. 3.2 Encourage mother to drink plenty of fluids.
4.	**Elimination**	4.1 Assess the normal bladder and bowel pattern. 4.2 Assess for any constipation. 4.3 Monitor intake and output chart.	4.1 Indwelling catheter in situ. 4.2 Provide catheter care Q8th hourly. 4.3 Watch the color , quantity and characteristic of	4.1 Remove catheter as per order . 4.2 Watch the urine output and inform doctor if mother did not void or output is less than 30ml.	4.1 Watch for normal bowel movement. 4.2 Watch the urine output. 4.3 Instruct mother not to strain while	4.1 Educate the mother to have regular bowel pattern.

		4.4 Bowel preparation HS and morning . 4.5 Catheterize the mother before shifting to the OT.	the urine. 4.4 Urine Output > 30ml / Hour. 4.5 Maintain I/o chart.	4.3 Watch for bowel movements.	defecation.	
5.	**Mobility and position**	5.1 Encourage mother to walk 5.2 Assist mother in walking if needed.	5.1 Strict bed rest as per order. 5.2 positioning Q4th hourly.	5.1 Mobilize with assistance as per order.	5.1 Mobilize independently	5.1 Mobilize independently .
6.	**Rest and Sleep**	6.1 Assess the normal sleeping pattern. 6.2 Provide comfortable position . 6.3 Educate about the importance of rest and sleep.	6.1 Assess the sleeping habits 6.2 Provide noise free environment 6.3 Ensure sound sleep and rest 6.4 Avoid Procedures during rest and sleep. 6.5 Provide comfort measures. 6.6 Pain management. 6.7 Administer sedations as per order.	6.1 Provide comfortable position . 6.2 Avoid Procedures during rest and sleep.	6.1 Provide Comfortable position . 6.2 Educate about the importance of rest and sleep.	6.1 Encourage mother to take rest in between the activities.
7.	**Comfort**	7.1 Unit cleanliness. 7.2 Clean hospital clothing. 7.3 Provide comfort	7.1 Provide comfort measures. 7.2 Maintain proper position Q4hrly .	7.1 Provide comfort while breast feeding. 7.2 Avoid visitors. 7.3 Explain about the	7.1 Encourage mother to perform kangaroo care. 7.2 Encourage	7.1 Provide comfort while breast feeding. 7.2 Avoid visitors.

		measures	7.3 Maintain position changing chart	kangaroo care. 7.4 Mummify the baby.	mother to mummify the baby. 7.3 Encourage mother to use clean clothes for the baby, washed and dried under the sun.	
8.	**Hygiene**	8.1 Skin preparation from nipple to mid thigh and back. 8.2 Encourage to wash the area after skin preparation . 8.3 Educate regarding perineal hygiene.	8.1 Encourage mother to have stellisept bath. 8.3 Change the linen. 8.4 Unit cleanliness. 8.5 Provide breast care. 8.6 Provide perineal care Q8th hourly.	8.1. Provide sponge bath. 8.2 Provide breast care before each feed. 8.3 Provide perineal care Q8th hourly. 8.4 Change the perineal pad when it is soaked.	8.1 Showers with assistance.	8.1Showers independently
9.	**Wound and dressing**	------	9.1 Assess the dressing for the oozing. 9.2 Assess the color and amount of the ooze . 9.3 Change the dressing, if soaked.	9.1 Assess the dressing for the oozing. 9.2 Assess the color and amount of the ooze . 9.3 Change the dressing, if soaked.	9.1 Old dressing is removed. 9.2 Assess the REEDA score – Redness- Erythema- Ecchymosis – Discharge – Approximation- 9.3 Wound edges well approximated. 9.4 Watch for any	9.1 Intact, clean and dry.

					oozing . 9.5 Note the color of the ooze if present. 9.6 Apply tegaderm 3591 size.	
10.	**Safety**	10.1 Encourage the mother to follow safety measures 10.2 Check for any prosthesis, dentures, eye glasses, contact lenses. 10.3 Instruct the mother to remove dentures, eye glasses and contact lenses. 10.4 Hand over the valuables to the attender and get sign.	10.1 Fix safety first board . 10.2 Put Side rails for the mother. 10.3 Keep the call bell with in the reach, if present.. 10.4 Instruct the use of call bell. 10.5 Locking the cot.	10.1 Assist the mother to walk safely . 10.2 Educate about the safe handling of the baby. 10.3 Follow safety while walking.	10.1 Child safety . 10.2 Educate regarding the safe use of sharp equipment in the home. 10.3 Advise not to leave the child alone.	10.1 Educate about the safety precaution in the home.
11.	**Medication**	11.1 Premedication as per physicians order. 11.2 Check the patient response to drug therapy	11.1 As per physicians order. 11.2 Monitor the mothers response to drug therapy	11.1 Administer IV Analgesics, antibiotics as per physicians order. .	11.1 Administer Oral Analgesics, antibiotics as per physicians order.	11.1 Explain the discharge Medications 11.2 Encourage mother to take medications regularly.
12.	**Communicati**	12.1 Maintain IPR	12.1 Maintain IPR	12.1 Maintain IPR	12.1 Maintain IPR	12.1 Communicate

	on	12.2Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother **.**	12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother.	12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother .	12.2 Explain all the procedures before doing. 12.3 Encourage mother to ventilate her feelings 12.4 Clear all the doubts of the mother .	the discharge summary to the mother. 12.2 Check whether the mother is receptive .
13.	**Spiritual needs**	13.1 Orient to the prayer hall. 13.2 Allow to pray without disturbance	13.1 Identify and encourage spiritual habits. 13.2 Encourage the mother to pray.	13.1 Encourage the mother to pray	13.1 Encourage the mother to pray.	13.1 Encourage the mother to pray.
14.	**Activity**	14.1 Teach leg exercises. 14.2 Educate importance of activities.	14.1 Provide bed rest as per doctors order.. 14.2 Encourage to do leg exercises in the bed. 14.3 Encourage to perform passive activity.	14.1 Encourage mother to perform activity of daily living with assistance.	14.1 Importance of active and passive exercise. 14.2 Encourage mother to perform activity of daily living .	14.1 Encourage mother to have regular activity in the home.
15.	**Pre operative preparation**	15.1 Obtain written consent. 15.2 Obtain anesthetic fitness. 15.3 Billing	------	---------	- ---------	--------

		clearance. 15.4 Provide gown and wear OT cap. 15.5 Verify the pre operative checklist 15.6 Arrange the stretcher for shifting. 15.7 Shift the mother to OT accompanied by the attender with case sheet and other investigation. 15.7 Handover the mother and the Case sheet and the investigation to the OT staff.				
16.	**Psychosocial aspect**	16.1 Reassure the mother. 16.2 Provide psychological support. 16.3 Maintain IPR.	16.1 Reassure the mother. 16.2 Provide psychological support 16.3 Maintain IPR	16.1 Reassure the mother. 16.2 Provide psychological support 16.3 Maintain IPR	16.1 Reassure the mother. 16.2 Provide psychological support 16.3 Maintain IPR	16.1 Give positive attitude towards child rearing.
17.	**Breast feeding**	17.1 Importance of breast feeding. 17.2 promotion of bonding.	17.1 Initiate breast feeding with in 4-6 hours as per doctors order. Breast care before each feed.	17.1 Explain about the demand feeding . 17.2 Educate the advantages of breast feeding.	17.1 Explain about the exclusive breast feeding. 17.2 Exclusively breast milk only for	17.1 Baby friendly hospital initiative. 18.2 How to perform expressed breast feeding.

			17.2 Assist the mother in breast feeding. 17.3 Demonstrate techniques of breast feeding. 17.4 Explain about the correct attachment and detachment for breast feeding.	17.3 Provide support and reassurance.	first 4-6 months.	
18.	**Health education**	18.1 Deep breathing and coughing exercises. 18.2 Leg exercises. 18.3 Pre operative preparation.	18.1 splinting the incision site while coughing. 18.2 Importance of positioning.	18.1 Importance of postnatal care. 18.2 Kangaroo care.	18.1 Prevention of infection.	18.1 Essential new born care

APPENDIX - XVI

DATA CODE SHEET FOR NURSES AND MOTHERS WITH CAESAREAN SECTION

S.N. **Sample No**

AGE- Age in years

1.1 20-24

1.2 25-29

1.3 > 30

REL- Religion

2.1 Hindu

2.2 Christian

2.3 Muslim

2.4 Others

EDU - Education

3.1 Illiterate

3.2 Primary School

3.3 Middle School

3.4 High School

3.5 Higher Secondary

3.6 Graduate

3.7 Post graduate

OCC- Occupation

4.1 Employed

4.2 House wife

AAM - Age at marriage in year

5.1 < 19

5.2 20 to 23

5.3 24 to 27

5.4 28 to 31

TOF - Type of the family

6.1 Nuclear

6.2 Joint

FMI - Family Income per month in Rupees

7.1 < 30,000

7.2 30,001 -50,000

7.3 50,001- 70,000

7.4 > 70,001

Obstetric variables

GA - Gestational age in weeks

1.1 37-38

1.2 39 -40

1.3 41-42

GRA- Gravida

2.1 Primi

2.2 Second

2.3 Third

2.4 Fourth

TOPD - Type of previous delivery

3.1 Not applicable

3.2 Normal delivery

3.3 Caesarean section

3.4 Instrumental delivery

NAV - Number of antenatal visit till date

4.1 No visit

4.2 < 4 times

4.3 > 5 times

IND - Indication for caesarean section

5.1 Previous elective and emergency caesarean section

5.2 Fetal indication

5.3 Maternal indication

TOC - Type of caesarean section

6.1 Elective

6.2 Emergency

TOA - Type of Anesthesia

7.1 General

7.2 Spinal.

COM - Co morbidity

8.1 History of minor illness before pregnancy.

8.2 History of illness during pregnancy.

8.3 Nil

COP - Complications arises during post operative period

9.1 Anesthetic complication

9.2 Post partum hemorrhage

9.3 Shock

9.4 Infection

9.5 Puerperal pyrexia

9.6 Nil

LES - Length of stay

10.1 4 days

10.2 5 days

10.3 6 days

LOS- level of satisfaction

MO – Maternal outcome

APPENDIX – XVII

Master coding sheet for nurses

S.No	Demographic variable proforma									Knowledge questionnaire			
	AGE	REL	EDU	MAS	TOR	YOE	INC	PI	SOI	Pre test		Post test	
1	1.1	2.1	3.2	4.1	5.2	6.2	7.3	8.1	9.1	16	M	24	A
2	1.1	2.2	3.1	4.1	5.2	6.1	7.1	8.2	-	10	I	18	M
3	1.2	2.2	3.1	4.1	5.1	6.2	7.2	8.1	9.1	15	M	16	M
4	1.1	2.2	3.1	4.1	5.2	6.1	7.1	8.1	9.1	10	I	18	M
5	1.1	2.2	3.2	4.1	5.2	6.2	7.3	8.2	-	14	M	23	A
6	1.2	2.2	3.1	4.2	5.1	6.1	7.2	8.2	-	11	I	19	A
7	1.1	2.2	3.1	4.1	5.2	6.1	7.1	8.1	9.2	8	I	22	A
8	1.1	2.2	3.1	4.1	5.2	6.2	7.2	8.2	-	16	M	21	A
9	1.1	2.2	3.2	4.1	5.2	6.2	7.2	8.2	-	15	M	20	A
10	1.2	2.1	3.1	4.1	5.2	6.2	7.2	8.1	9.1	11	I	16	M
11	1.1	2.2	3.2	4.1	5.2	6.1	7.2	8.1	9.1	14	M	22	A
12	1.1	2.1	3.2	4.1	5.2	6.1	7.1	8.1	9.1	17	M	23	A
13	1.1	2.1	3.2	4.1	5.2	6.1	7.2	8.1	9.1	15	M	22	A
14	1.2	2.1	3.2	4.2	5.2	6.1	7.2	8.2	-	15	M	22	A
15	1.1	2.1	3.1	4.1	5.1	6.2	7.3	8.2	-	13	M	21	A
16	1.2	2.2	3.1	4.2	5.1	6.3	7.3	8.2	-	16	M	23	A
17	1.1	2.1	3.2	4.1	5.1	6.1	7.2	8.2	-	12	I	19	A
18	1.1	2.2	3.2	4.1	5.2	6.1	7.2	8.2	-	19	A	25	A
19	1.1	2.2	3.2	4.1	5.2	6.1	7.1	8.1	9.1	9	I	22	A
20	1.1	2.1	3.2	4.1	5.2	6.1	7.2	8.2	-	13	M	18	M
21	1.1	2.1	3.3	4.1	5.1	6.2	7.2	8.1	9.1	10	I	21	A
22	1.1	2.2	3.1	4.2	5.1	6.1	7.2	8.2	-	13	M	22	A
23	1.2	2.2	3.1	4.2	5.1	6.2	7.3	8.2	-	16	M	17	M
24	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	-	10	I	20	A
25	1.1	2.2	3.2	4.1	5.1	6.1	7.2	8.2	-	9	I	16	M
26	1.1	2.1	3.1	4.1	5.2	6.2	7.2	8.1	9.1	10	I	24	A
27	1.1	2.2	3.1	4.1	5.2	6.2	7.2	8.2	-	17	M	20	A
28	1.1	2.1	3.1	4.1	5.2	6.1	7.2	8.2	-	17	M	21	A
29	1.1	2.1	3.1	4.2	5.1	6.2	7.3	8.2	-	14	M	17	M
30	1.3	2.2	3.1	4.1	5.2	6.3	7.3	8.1	9.1	13	M	19	A
31	1.1	2.2	3.1	4.1	5.2	6.1	7.1	8.1	9.1	16	M	17	M
32	1.1	2.2	3.1	4.1	5.2	6.1	7.1	8.2	-	9	I	20	A
33	1.1	2.1	3.2	4.1	5.2	6.1	7.1	8.2	-	15	M	20	A
34	1.1	2.2	3.1	4.1	5.2	6.2	7.1	8.2	-	12	I	21	A
35	1.1	2.2	3.2	4.1	5.2	6.1	7.2	8.2	-	19	A	25	A
36	1.1	2.1	3.2	4.1	5.1	6.1	7.2	8.1	9.1	19	A	20	A
37	1.1	2.2	3.2	4.1	5.1	6.1	7.2	8.2	-	19	A	24	A
38	1.1	2.2	3.1	4.1	5.2	6.1	7.2	8.1	9.1	18	M	19	A
39	1.1	2.1	3.1	4.1	5.2	6.2	7.3	8.2	-	21	A	24	A
40	1.1	2.1	3.2	4.1	5.2	6.1	7.2	8.1	9.1	17	M	23	A

Master Coding Sheet for Control Group of Mothers with Caesarean Section

S.No	Demographic Variable							Obstetric Variable										Clinical Pathway(DAY)					LOS	MO
	AGE	REL	EDU	OCC	AAM	TOF	FMI	GA	GRA	TOPD	NAV	IND	TOC	TOA	COM	COP	LES	1	2	3	4	5		
1	1.2	2.1	3.6	4.1	5.3	6.1	7.4	1.3	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.2	84	92	52	43	36	63	1
2	1.1	2.3	3.5	4.2	5.2	6.2	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.2	85	94	52	43	36	57	0
3	1.1	2.3	3.5	4.2	5.2	6.2	7.3	1.3	2.1	3.1	4.3	5.3	6.1	7.2	8.3	9.6	10.2	82	92	53	43	38	59	0
4	1.2	2.3	3.5	4.2	5.2	6.1	7.3	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	78	93	56	44	39	59	0
5	1.3	2.1	3.6	4.1	5.3	6.2	7.3	1.3	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	80	94	55	45	38	57	2
6	1.2	2.2	3.6	4.1	5.3	6.1	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.2	83	94	58	46	38	64	1
7	1.3	2.1	3.6	4.2	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.1	8.2	9.6	10.2	81	95	57	46	35	59	0
8	1.3	2.2	3.7	4.1	5.4	6.1	7.3	1.2	2.1	3.1	4.3	5.3	6.1	7.1	8.2	9.6	10.2	86	97	57	45	37	69	1
9	1.3	2.1	3.7	4.1	5.4	6.2	7.4	1.3	2.1	3.1	4.3	5.3	6.2	7.2	8.2	9.6	10.2	86	97	58	46	38	65	0
10	1.3	2.1	3.5	4.2	5.3	6.1	7.3	1.2	2.2	3.3	4.3	5.2	6.2	7.2	8.3	9.6	10.2	90	94	56	46	38	59	0
11	1.3	2.1	3.6	4.1	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.3	9.6	10.2	82	93	57	50	37	73	0
12	1.1	2.1	3.6	4.1	5.2	6.1	7.3	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	83	95	57	49	41	62	0
13	1.2	2.2	3.6	4.1	5.3	6.2	7.4	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.3	9.6	10.1	80	92	63	51	48	56	1
14	1.1	2.1	3.6	4.2	5.2	6.2	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.2	85	92	62	50	48	74	0
15	1.3	2.1	3.7	4.2	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.2	9.6	10.2	83	97	63	52	45	63	0
16	1.3	2.2	3.5	4.1	5.3	6.1	7.3	1.2	2.1	3.1	4.3	5.2	6.1	7.1	8.3	9.6	10.1	88	97	60	52	44	57	0
17	1.3	2.1	3.7	4.1	5.3	6.1	7.3	1.2	2.2	3.2	4.3	5.3	6.2	7.1	8.3	9.6	10.2	97	96	59	51	43	57	2
18	1.3	2.3	3.6	4.2	5.4	6.2	7.3	1.3	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	87	95	59	51	41	69	0
19	1.3	2.1	3.7	4.1	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.2	86	95	58	52	41	58	0
20	1.1	2.1	3.5	4.2	5.2	6.1	7.3	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.2	9.6	10.2	89	93	59	50	42	63	0
21	1.2	2.2	3.5	4.1	5.3	6.1	7.3	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	87	95	58	51	44	65	0
22	1.3	2.3	3.5	4.2	5.4	6.1	7.3	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	88	94	58	51	41	52	1
23	1.2	2.1	3.6	4.2	5.3	6.1	7.3	1	2.1	3.1	4.3	5.3	6.2	7.2	8.2	9.6	10.2	83	93	61	50	43	65	0
24	1.3	2.1	3.6	4.1	5.4	6.1	7.3	1.3	2.1	3.1	4.3	5.3	6.1	7.2	8.3	9.6	10.2	86	92	61	52	42	63	0
25	1.1	2.2	3.6	4.2	5.2	6.1	7.3	1.2	2.2	3.3	4.3	5.2	6.2	7.2	8.3	9.6	10.2	83	92	59	52	43	57	1
26	1.2	2.2	3.5	4.2	5.2	6.1	7.4	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.1	85	95	59	52	44	58	0
27	1.3	2.1	3.6	4.1	5.3	6.1	7.3	1.3	2.1	3.1	4.3	5.3	6.2	7.2	8.3	9.6	10.2	88	94	56	54	44	62	0
28	1.2	2.1	3.6	4.1	5.3	6.1	7.4	1.2	2.1	3.1	4.3	5.2	6.1	7.1	8.3	9.6	10.2	85	94	56	56	45	66	0
29	1.2	2.1	3.6	4.2	5.3	6.2	7.3	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.3	9.6	3.0	86	93	58	55	45	70	0
30	1.3	2.2	3.6	4.2	5.2	6.1	7.3	1.2	3	3.3	4.3	5.1	6.1	7.1	8.3	9.6	3.0	89	93	57	55	45	72	0

Master Coding Sheet for Experimental Group of Mothers with Caesarean Section

S.NO	Demographic Variable							Obstetric Variable										Clinical Pathway (DAY)					LOS	MO
	AGE	REL	EDU	OCC	AAM	TOF	FMI	GA	GRA	TOPD	NAV	IND	TOC	TOA	COM	COP	LES	1	2	3	4	5		
1	1.1	2.3	3.5	4.2	5.2	6.1	7.4	1.1	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	113	112	78	71	55	66	0
2	1.3	2.1	3.6	4.2	5.3	6.1	7.4	1.2	2.2	3.3	4.3	5.3	6.1	7.1	8.3	9.6	10.2	114	115	81	70	55	80	0
3	1.1	2.1	3.6	4.1	5.2	6.1	7.5	1.2	2.1	3.1	4.3	5.3	6.1	7.1	8.3	9.6	10.2	115	115	81	71	55	71	0
4	1.2	2.1	3.6	4.1	5.3	6.1	7.4	1.1	2.1	3.1	4.3	5.3	6.1	7.2	8.3	9.6	10.1	115	115	80	71	55	78	1
5	1.2	2.1	3.6	4.2	5.3	6.2	7.5	1.2	2.1	3.1	4.3	5.3	6.2	7.2	8.2	9.6	10.2	113	112	82	72	55	60	0
6	1.3	2.1	3.7	4.1	5.4	6.1	7.5	1.1	2.1	3.1	4.3	5.1	6.1	7.2	8.3	9.6	10.2	117	109	78	73	56	66	2
7	1.3	2.1	3.6	4.1	5.3	6.1	7.5	1.1	2.2	3.3	4.3	5.1	6.1	7.2	8.2	9.6	10.2	117	109	78	73	56	80	0
8	1.2	2.2	3.6	4.1	5.3	6.1	7.4	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.1	9.6	10.2	115	108	79	73	56	70	0
9	1.2	2.1	3.6	4.2	5.3	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.1	7.1	8.2	9.6	10.2	114	111	80	72	56	60	0
10	1.2	2.2	3.5	4.2	5.2	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.2	7.1	8.3	9.6	10.1	114	113	80	71	56	80	0
11	1.3	2.3	3.7	4.2	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.1	7.2	8.2	9.6	10.2	116	114	81	70	56	71	0
12	1.2	2.1	3.6	4.1	5.2	6.1	7.4	1.1	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	116	113	79	68	55	66	1
13	1.3	2.3	3.5	4.2	5.2	6.1	7.5	1.1	2.3	3.2	4.3	5.2	6.2	7.2	8.2	9.6	10.2	114	113	78	69	56	70	0
14	1.3	2.1	3.6	4.1	5.4	6.1	7.4	1.1	2.1	3.1	4.3	5.3	6.1	7.1	8.2	9.6	10.2	116	113	69	69	56	66	9
15	1.3	2.3	3.7	4.1	5.3	6.1	7.5	1.2	2.1	3.1	4.3	5.2	6.2	7.1	8.3	9.6	10.2	115	109	71	71	56	69	0
16	1.3	2.2	3.6	4.2	5.4	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.1	7.2	8.2	9.6	10.2	116	113	62	62	55	70	1
17	1.2	2.3	3.6	4.1	5.2	6.1	7.5	1.1	2.2	3.3	4.3	5.1	6.1	7.2	8.3	9.6	10.1	114	109	73	73	56	67	0
18	1.1	2.3	3.5	4.2	5.2	6.1	7.3	1.2	2.2	3.1	4.3	5.1	6.1	7.1	8.3	9.6	10.2	115	109	73	73	56	69	0
19	1.3	2.1	3.6	4.2	5.3	6.2	7.4	1.2	2.2	3.2	4.3	5.2	6.2	7.1	8.3	9.6	10.2	114	113	71	71	55	64	0
20	1.3	2.1	3.7	4.1	5.4	6.2	7.4	1.1	2.1	3.1	4.3	5.3	6.1	7.2	8.2	9.6	10.2	115	116	75	75	56	80	0
21	1.3	2.1	3.6	4.2	5.3	6.1	7.3	1.2	2.1	3.1	4.3	5.3	6.1	7.1	8.2	9.6	10.2	115	116	75	75	56	71	0
22	1.3	2.1	3.5	4.2	5.3	6.2	7.4	1.1	2.1	3.1	4.3	5.3	6.1	7.1	8.2	9.6	10.2	115	115	75	75	56	63	0
23	1.2	2.1	3.6	4.2	5.3	6.1	7.4	1.3	2.1	3.1	4.3	5.3	6.1	7.1	8.3	9.6	10.2	115	115	75	75	56	68	1
24	1.3	2.1	3.6	4.1	5.2	6.1	7.4	1.1	2.2	3.3	4.3	5.1	6.1	7.1	8.1	9.6	10.2	115	115	74	74	56	64	0
25	1.2	2.1	3.7	4.1	5.2	6.1	7.4	1.2	2.1	3.1	4.3	5.3	6.1	7.2	8.3	9.6	10.2	115	115	76	76	56	80	0
26	1.3	2.3	3.6	4.2	5.4	6.1	7.5	1.1	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	112	114	74	74	56	71	0
27	1.2	2.2	3.6	4.1	5.2	6.1	7.4	1.1	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	115	115	73	73	56	69	0
28	1.2	2.1	3.6	4.2	5.3	6.1	7.4	1.1	2.1	3.1	4.3	5.2	6.2	7.2	8.1	9.6	10.2	113	116	75	75	56	67	9
29	1.2	2.2	3.5	4.2	5.2	6.1	7.5	1.2	2.2	3.3	4.3	5.1	6.1	7.1	8.3	9.6	10.2	115	115	72	72	56	69	0
30	1.2	2.1	3.6	4.1	5.3	6.1	7.4	1.2	2.1	3.1	4.3	5.2	6.2	7.2	8.3	9.6	10.1	113	115	72	72	56	73	0


REMARKS
SPECIFICS